TIER II PERMIT APPLICATION FOR MUNICIPAL SOLID WASTE TRANSFER STATION

CITY OF ADA, PONTOTOC COUNTY, OKLAHOMA

Prepared For:

City of Ada

Prepared By:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
Oklahoma City, OK

CEC Project 183-660

AUGUST 2019

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

Civil & Environmental Consultants, Inc.

August 15, 2019

Hand Delivery on August 15, 2019

Oklahoma Department of Environmental Quality
Land Protection Division
P.O. Box 1677
Oklahoma City, OK 73101-1677

Attention: Ms. Hilary Young, P.E.
Chief Engineer

RE: Tier II Permit Application
City of Ada Municipal Solid Waste Transfer Station
City of Ada
Ada, Pontotoc County, Oklahoma
CEC Project No.: 183-660

Dear Ms. Young:

On behalf of our client, City of Ada, we are submitting to you the original and two copies of a Tier II Permit Application. This Tier II Permit Application is for the City of Ada Municipal Solid Waste Transfer Station proposed to be located in Ada, Pontotoc County, Oklahoma.

We trust that the information contained herein is complete. However, if you need additional information, please do not hesitate to contact the Ms. Cyndi Neitzel at (405) 463-7609 (cneitzel@cecinc.com) or Mr. Jeff Shepherd at (405) 463-7607 (jshepherd@cecinc.com).

Sincerely,
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

for
Cyndi Neitzel
Project Manager II

Jeff A. Shepherd, P.E.
Principal

242190 CD__ #c3 c/o HY

Solid Waste

Permit No: NONE

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APPENDICES

1.0 INTRODUCTION

City of Ada is submitting this Tier II Permit Application for a Municipal Solid Waste Transfer Station (MSWTS) that is proposed to be constructed and operated near Ada, Pontotoc County, Oklahoma. The MSWTS will be operated as a transfer station that will accept municipal solid waste from waste collection vehicles and combine the waste and load into transfer trailers for transportation to an Oklahoma Department of Environmental Quality (ODEQ) approved landfill. The MSWTS is located on County Road 1520, Ada, Oklahoma (See Drawing Number 2 in Appendix B). The facility will be known as the City of Ada Transfer Station (ATS).

2.0 PUBLIC PARTICIPATION

2.1 PUBLIC NOTICE

Pursuant to Oklahoma Administrative Code (OAC) 252:4-7-13(a), a public notice is required to be submitted and published in local newspapers.

2.2 NOTICE TO LANDOWNERS

OAC 252:4-7-13(b) requires ATS to certify by affidavit that they own the real property, have a current lease or easement which is given to accomplish the permitted purpose, or have provided legal notice to the landowner. ATS does own the property on County Road 1520, Ada, OK (See Appendix A for legal description). Please see applicable documents in Appendix A-3 and Drawing Number 5 in Appendix B.

2.3 NOTICE CONTENT

ATS, as required by OAC 252:4-7-13(c), will provide the ODEQ with a draft notice for approval prior to publication. The public notice will include the following information:

- Name and address of applicant;
- Name, address, and legal description of the facility and/or activity;
- Purpose of notice;
- Type of permit or permit action being sought;
- Description of activities to be regulated;
- Locations where the application may be reviewed;
- Names, addresses, and telephone numbers of contact persons for the ODEQ and for the applicant; and
- Any other information required by the ODEQ.

2.4 PROOF OF PUBLICATION

A public notice that an application for a Tier II Permit Application, as required by 27A O.S. Chapter 2-10-301, 302, 303, and OAC 252:4-7-13(d), has been filed and provided to the ODEQ.

A public notice that a draft permit for a Tier II Permit Application as required by 27A O.S. Chapters 2-10-301, 302, 303, and OAC 252:4-7-13(d), will be issued and published on a future date. A copy of this public notice and the affidavit of publication will be provided to the ODEQ.

3.0 GENERAL PROVISIONS

3.1 PERMIT REQUIRED

OAC 252:515-3-1 requires a solid waste permit for a land disposal facility. ATS is submitting this Tier II Permit Application to comply with OAC 252:515-3-1.

3.2 DISCLOSURE STATEMENT

Pursuant to OAC 252:515-3-31(g), ATS has completed a Disclosure Statement which is found in Appendix A-1.

3.3 OATH REQUIRED

As required by OAC 252:515-3-33, this application includes the form entitled "Application Form" which is signed under oath by ATS. Appendix A-2 contains the signed application form.

3.4 LEGAL RIGHT TO PROPERTY

As described in Section 2.2, ATS owns the property that contains the permitted boundary of the proposed MSW transfer station. See Appendix A-3 for the information on Landowner Certification.

3.5 ENGINEER OF RECORD

The application contains a signed application page sealed by an Oklahoma registered professional engineer. Appendix A-2 contains this document. All relevant engineering drawings and maps are sealed and signed by an Oklahoma registered professional engineer as well.

4.0 GENERAL INFORMATION

4.1 NEW APPLICATIONS

Pursuant to OAC 252:515-3-36(a), permit applications for new solid waste disposal facilities shall include all information required by the Oklahoma Uniform Environmental Protection Act, which includes the following:

• **Facility Owner**	City of Ada 231 S Townsend Ada, OK 74820
• **Facility Name**	City of Ada Transfer Station
• **Mailing Address**	231 S. Townsend Ada, OK 74820
• **Physical Address**	12435 County Road 1520, Ada, OK
• **Disclosure Statement**	See Appendix A
• **Legal Description**	See Appendix A and Drawing No. 5 in Appendix B
• **Latitude/Longitude of Corners and Entrance**	Entrance: 34^0 48' 38.18" N 96^0 43' 59.92" W NW corner:$34^0$48' 39.56" N 96^0 44' 06.72" W SW corner:34^0 48' 26.82" N 96^0 44' 06.79 W NE corner: 34^0 48'39.08" N 96^0 43' 51.43"W SE corner: 34^0 48'26.70" N 96^0 43' 51.14" W
• **Nearest Town**	City of Ada
• **Proposed Operation**	The Tier II application proposes to construct, operate, and close a new MSWTS.

- **Anticipated Waste Stream** — The proposed MSWTS is capable of accepting MSW. Due to the unpredictable supply of the waste stream, the anticipated volume of the waste stream is not possible. However ATS anticipates a total waste stream weight of approximately 100-150 tons per day.
- **Area Served** — The area served for the MSWTS consists of the City of Ada and the surrounding communities.
- **Estimated Population Served** — Pontotoc County is approximately 725 square miles. According to the 2010 census, Pontotoc County's population is 37,492.
- **Road Construction** — The proposed MSWTS will have an aggregate based entrance road and an aggregate based road to the transfer station. There will be a concrete or asphalt paved area in front of the transfer station that will allow trucks to turnaround and back into the transfer station. The inside of the building will be paved as well.
- **Operation Equipment** — The proposed MSWTS will be staffed with the appropriate number of personnel necessary to complete the process of transferring the waste from the waste collection vehicles to the waste transfer vehicles.
- **Permit Drawings** — See Appendix B
- **Location Restrictions** — See Section 6.0 and Appendix C
- **Operation Plan** — See Section 7.0
- **Stormwater Management** — See Section 8.0 and Appendix D
- **Closure Plan** — See Section 10.0 and Appendix E.

5.0 MAPS AND DRAWINGS

As required by OAC 252:515-3-31, the following is a list of maps and design drawings included in Appendix B. These are the permit drawings completed by Civil & Environmental Consultants, Inc. (CEC) for the proposed MSWTS.

5.1 GENERAL LOCATION MAP

As required by OAC 252:515-3-52, see Drawing No. 2 in Appendix B.

5.2 FLOOD PLAIN MAP

As required by OAC 252:515-3-53, Drawing No. 3 in Appendix B.

5.3 QUADRANGLE TOPOGRAPHIC MAP

As required by OAC 252:515-3-54, see Drawing No. 4 in Appendix B.

5.4 EXISTING CONTOUR MAP

As required by OAC 252:515-3-55, see Drawing No. 5 in Appendix B.

5.5 SITE MAP

As required by OAC 252:515-3-56, see Drawing No. 6 in Appendix B.

5.6 AS BUILT DRAWINGS

As required by OAC 252:515-3-57, ATS will submit as built drawings to ODEQ upon completion construction. ATS will construct the facility within 12 months of receiving the final permit.

6.0 LOCATION STANDARDS

6.1 SCENIC RIVERS

CEC submitted a letter by registered mail to the Oklahoma Scenic Rivers Commission (Commission) to request a determination as required by OAC 252:515-5-31(a). The Commission responded indicating that they had no comments on the proposed project. Therefore based upon this response "*no area within the permit boundary of this new Solid Waste Disposal Facility is located within the drainage basin of any river designated un the Oklahoma Scenic Rivers Commission Act*". See correspondence in Appendix C.

6.2 RECREATION/PERSERVATION AREAS

CEC submitted a letter by registered mail to the Oklahoma Tourism and Recreation Department, and Oklahoma Historical Society to request a determination based on OAC 252:515-5-31(b). The responses from the Oklahoma Tourism and Recreation Department and Oklahoma Historical Society are summarized below.

- The Oklahoma Tourism and Recreation Department stated that no recreational area, state or Municipal Park funded with federal money located in the area of the proposed property.
- Oklahoma Historical Society indicated in their letter that further action was required since the United States Environmental Protection Agency for a Section 106 consultation. After discussions with the Oklahoma Historical Society, since no federal funds will be used for this project, then no further action is necessary.

Based upon the above information, "*no area within the permit boundary of this MSW Processing Facility is located with ½ mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.*" See all correspondence in Appendix C.

6.3 ENDANGERED OR THREATENED SPECIES

CEC submitted a letter by registered mail to the Oklahoma Department of Wildlife Conservation, Oklahoma Natural Heritage Inventory, and to the Oklahoma Biological Survey to request a determination based on OAC 252:515-5-31(c). Below is a summary of the responses received.

- Oklahoma Natural Heritage Inventory indicate that they found no occurrences within the vicinity of the project location.
- Oklahoma Department of Wildlife Conservation indicates that they found no species of concern in the project location.
- Oklahoma Biological Survey indicates that they found no occurrences within the vicinity of the project location.

Therefore, based on these responses, "*no area within the permit boundary of this proposed MSW Processing Facility is located within 1 mile of any endangered or threatened wildlife or plant species listed in state and federal laws*". See all correspondence in Appendix C.

6.4 100-YEAR FLOODPLAIN

To determine if the proposed transfer station is located within a 100-year floodplain as required by OAC 252:515-5-32(a), ATS obtained copies of the Flood Insurance Rate Maps (FIRM) for Pontotoc County and have included copies in Appendix B. The FIRM's clearly indicate that the proposed transfer station is not located within the 100-year floodplain. See all drawings in Appendix B.

6.5 PUBLIC WATER SUPPLY

The MSWTS is a solid waste processing facility. Waste entering the facility will not be stored on a permeable surface; therefore, not subject to OAC 252:15-5-32(b).

6.6 WELLHEAD PROTECTION AREA

OAC 515:15-32(c) requires a wellhead protection plan if a new waste management or disposal area is located within two miles of a public water supply well. As shown in Figure 1 in Appendix C, no public supply wells exist within two miles of the MSWTS; therefore no wellhead protection plan is required.

6.7 WETLANDS

CEC submitted by registered mail to the Oklahoma Conservation Commission requesting a determination based on OAC 252:515-532(d). The Oklahoma Conservation Commission

responded indicated that "*hydric soils are not indicated on the soil survey map, however an area classified as Freshwater Forested/Shrub Wetland (PFO1A) was identified at the site....*" The United States Army Corps of Engineers (USACE) was contacted for a determination.

The USACE provided a determination on the potential disturbance of wetlands on the proposed property. In the determination, the USACE indicated that if dredged or fill material will be placed into wetlands or other waters further information will be required to determine the appropriate permitting required under Section 404 of the Clean Water Act. The proposed work does not involve dredging or filling wetlands of other waterways. As a result, the proposed work is not subject to Section 404 of the Clean Water Act and the Department of Army (DA) permit will not be required. Please see all correspondence in Appendix C.

6.8 TERRACE DEPOSITS

The MSWTS is not a land disposal facility nor an expansion of the permit boundary of an existing land disposal facility; therefore the location restrictions in OAC 252:515-5-51(a) do not apply.

6.9 KARST TERRAIN

The MSWTS is not a municipal solid waste landfill; therefore the location restrictions in OAC 252:515-5-51(b) do not apply.

6.10 EARTHQUAKE EPICENTER AREA

The MSWTS is not a land disposal facility; therefore the location restrictions in OAC 252:515-5-51(c) do not apply.

6.11 UTILITY/TRANSMISSION LINES

There is no utility easement located at the proposed location for the MSWTS.

6.12 FAULT AREAS

The MSWTS is not a land disposal facility; therefore the location restrictions in OAC 252:515-5-52(b) do not apply.

6.13 SEISMIC IMPACT ZONES

The MSWTS is not a land disposal facility; therefore the location restrictions in OAC 252:515-5-52(c) do not apply.

6.14 UNSTABLE AREAS

CEC reviewed the historic underground mining information found on the website for Oklahoma Department of Mines (ODOM). ODOM indicates that very little evidence of widespread underground mining in Pontotoc County.

6.15 AIRPORTS

The MSWTS is not a land disposal facility. Sorting of waste will occur indoor. Therefore, the location restriction in OAC 252:15-52(e)(2) does not apply.

7.0 LEACHATE COLLECTION AND MANAGEMENT

7.1 APPLICABILITY

OAC 252:515-13-1(b) requires all solid waste disposal facilities to manage leachate following the requirements of OAC 252:515-13-51. As shown in the permit drawings in Appendix B, water collected inside the transfer station will be pumped via a dual contained pipe to a leachate storage pond located within the City of Ada Landfill.

8.0 STORMWATER MANAGEMENT

The entire proposed MSWTS will be constructed so as to minimize the run-on and run-off. The majority of stormwater will be directed to one of two detention ponds. Stormwater discharge from the two detention ponds will discharge into a creek located south of the property. Stormwater design calculations are found in Appendix D.

9.0 OPERATION PLAN

9.1 PROHIBITED WASTES

Per OAC 252:515-19-31, site personnel will be properly trained to identify hazardous, radioactive, and polychlorinated biphenyl (PCB) waste. Hazardous waste, radioactive, regulated PCB waste, regulated medical waste, asbestos, and on-hazardous industrial waste (NHIW) will not be accepted at the transfer station. Loads will be visually inspected by trained personnel during normal operations. If unacceptable waste is discovered, the waste will be properly containerized and transported to a permitted disposal facility. A record documenting proper procedure will be maintained on file.

9.2 PUBLIC ACCESS CONTROL

A sign will be located at the entrance of the proposed MSWTS as required by OAC 252:515-19-32. The sign will include the site name, permit number, and hours of operation. Public access, prevention of unauthorized traffic, and uncontrolled dumping will be controlled by a single access gate and chain-link fence located along the western boundary. The remaining boundaries will be controlled by fencing.

9.3 MEASURING WASTE

As required by OAC 252:515-19-33, waste received at the MSWTS will be measured using a scale. Vehicles will be measured prior to and immediately following waste disposal to determine the amount of waste received. Collection vehicles and other vehicles that frequently use the facility will establish and maintain an average vehicle volume. The facility's monthly report will contain information on the total volume of solid waste received.

9.4 LIMITATIONS ON WASTE RECEIVED

Meeting the requirements of OAC 252:515-19-34, the proposed MSWTS will not accept more than 200 tons of waste per day from outside the State of Oklahoma.

9.5 LITTER CONTROL

Waste transfer will occur inside the transfer station building. There will be doors located on the below ground tunnel that will be closed during operation of the transfer station to prevent wind from blowing waste outside of the building. The transfer station will be operated as per OAC 252:515-19-35 so that litter should not be an issue. However, all loose or scattered waste will be policed by site personnel.

9.6 AIR CRITERIA

As required by OAC 252:515-19-36, the MSWTS will comply with Oklahoma Clean Air Act. The proposed MSWTS personnel will use all means necessary to control dust emissions. All processing operations will be conducted inside to protect it against wind.

9.7 DISEASE

Pursuant to OAC 252:515-19-37, the proposed MSWTS will be constructed so that waste processing takes place with the operations building. By consolidating all operations into this area, it eliminates any other area to be cleaned. Any paper or debris outside the building will be picked up by site personnel. Best management practices in handling the MSW do not control vectors; the proposed MSWTS will take additional steps to control vectors including the placement and use of traps and commercial pesticides around the facility.

9.8 PLACEMENT OF WASTE

The proposed MSWTS is shown on Drawing No. 6. Also shown on Drawing No. 6 is the location of a recycling facility, which is slated for construction within the next three to five years. Furthermore, Drawing No. 6 shows the approximate location of a compost pad that is also proposed to be constructed in the future. The placement of waste within the MSWTS, is per OAC 252:515-19-38. Waste collection vehicles will drive into the operations building where the refuse will be directly deposited onto the tipping floor and will be sorted into the correct areas for recycling.

9.9 SALAVAGE AND RECYCLING

Recycling will not occur within the MSWTS. Recycling will occur at the future recycling facility, which is not part of this Tier II Permit Application. If recycling and/or salvage is going to occur within the MSWTS, then a Recycling Plan shall be prepared and submitted to the ODEQ for review and approval as per OAC 252:515-19-39

9.9.1 Materials and Storage

The MSWTS will accept waste from residential and commercial waste customers, and private customers (citizens or companies) from the City of Ada as well as other communities. Waste will be brought by waste collection vehicles. It is estimated that the MSWTS will accept approximately 100-150 tons per day of waste.

9.9.2 Operational Area

Work will occur indoors at the MSWTS.

9.9.2.1 Stormwater

Since the waste processing will occur indoors, stormwater will not come into contact with the waste during the waste transfer process. If stormwater does come into contact with the waste, it will be collected and pumped to the leachate storage pond located at the City of Ada Landfill, which is located adjacent to the proposed MSWTS. Stormwater from outside of the building will flow into the stormwater detention pond (see Drawing No. 6 in Appendix B).

9.9.2.2 Blowing Liter

The MSWTS will be an enclosed building. Waste collection vehicles will enter on the west side through large roll-up doors. These doors will typically be open to allow waste collection vehicles to enter and exit. However, during days of high winds, typically winds of 15 miles per hour (mph) or greater, the roll-up doors will be closed and opened only to allow vehicles to enter. After the vehicle has completely entered the building and during the tipping process, the doors will be

closed. Once the waste collection vehicles have finished tipping waste, the doors will be opened and the waste collection vehicles will exit the building.

The waste will be loaded into waste transfer trucks for disposal at an ODEQ approved facility. The waste transfer trucks will be loaded from top in a tunnel system (See Drawing No. 6 in Appendix B). The transfer vehicles will enter the tunnel from the west side of the MSWTS and will exit from the east side of the building. Roll-up doors will be installed on either side so that the tunnel can be sealed from the wind during high wind days. The roll-up doors will prevent the wind from blowing through the tunnel and carrying paper and plastic waste out of the facility.

If waste is blown out of the facility, site personnel will collect the waste and place in bags for disposal at an ODEQ approved facility.

9.9.2.3 Fires

Since the MSWTS will be located outside of the city limits of Ada, the facility will most likely be required to have a fire suppression system. This system will be designed, installed, and operated in accordance with the City of Ada building codes.

9.9.3 Processing Equipment

The waste will arrive at the MSWTS via residential and commercial waste collection vehicles. The waste will be deposited on the floor at the facility where it will be processed and pushed into the waste transfer vehicles. Once the waste is processed into a waste transfer vehicle, it will be hauled to an ODEQ approved facility.

9.10 RECORDKEEPING AND REPORTING

Pursuant to OAC 252:515-19-40, records will be kept for the transfer facility. These records will include:

- Name, address, and telephone number of all employees;
- A list of all waste collection vehicles bringing waste to the facility and amount;
- The amount and destination of all waste recycled from the site;

- A-log of major operational problems encountered, including complaints and difficulties; and
- A log of all efforts made to control vectors, odors, dust, and liter.

A daily log will be maintained by the Supervisor to record operational information, including the quantity of refuse processed as well.

This information will be recorded and a copy sent to the ODEQ by the tenth day of each month as required.

9.11 PROCESSING TIME

As indicated by OAC 252:515-19-91, the municipal solid waste will be processed within 24 hours of delivery. If appropriate odor and vector measures are implemented, processing time may be extended to 48 hours. If processing failures occur, all municipal solid wastes shall be removed within 96 hours to an alternate permitted disposal site.

9.12 LARGE OR BULKY ITEMS

Pursuant to OAC 252: 515-19-92, the MSWTS plans to handle large and bulky items separately minimizing damage to the facility equipment.

9.13 RESIDUE MANAGEMENT

As required by OAC 252:515-19-91, the MSWTS will characterize all process waste and residues as hazardous or non-hazardous and will dispose the waste in a properly permitted disposal facility.

9.14 OTHER OPERATIONAL ITEMS

The following information addresses addition operational issues that will be dealt with at the MSWTS.

9.14.1 Access Road

Access to the proposed MSWTS is via County Road E1520 which is paved. The entrance and on-site access will be maintained by the owner and will be passable under all weather conditions.

9.14.2 Employee Facilities

An office with restroom facilities will be available at the facility and will provide shelter and sanitary services for site personnel and citizens accessing the facility.

9.14.3 Fire Protection

Any fires, whether in the facility or within equipment or personnel vehicles, will be extinguished immediately by personnel using a fire extinguisher or fire hose. Also, as indicated in Section 9.9.4.3, there will most likely be a fire suppression system located at transfer station building. If a larger fire occurs, the City of Ada fire Department will be employed to extinguish the fire. All employees will be familiar with procedures to follow in case of a fire.

9.14.4 Maintenance

Safety is a very important aspect of the day-to-day operations of the facility. In order to prevent accidents due to malfunctioning equipment, as well as to equipment costs as low as possible, a regular maintenance schedule will be implemented. Maintenance will be performed in accordance with equipment manufacturer's guidelines or as needed. A maintenance plan for equipment and records of equipment maintenance will be kept on file. No vehicle maintenance will be performed at the facility.

9.14.5 Water Management

The following summarizes the measures taken to control stormwater.

- Surface Water Diversion: All surface water is diverted to a detention basin.
- Flood Plain: The Flood Insurance Rate Map (FIRM) (See Drawing No. 3 in Appendix B) was obtained for the proposed MSWTS and surrounding area. The map indicates that a portion of the boundary is not located in the 100-year flood plain. The actual building where the facility will not be located in the flood zone area and as a result should not be susceptible to flooding.

9.14.6 Accidental Prevention and Safety

In order to minimize accidents, all employees will be familiar with and adhere to all safety rules, requirements, and regulations as set forth by the Facility Manager, upon office development. Accident Prevention and Safety training will be provided to all employees. Multipurpose ABC fire extinguishers shall be provided on all equipment.

9.14.7 Liquids Restriction and Co-disposal

Bulk or non-containerized liquid shall not be accepted.

9.14.8 Closure Plan

A Closure Plan is presented in Section 10.0 and Appendix E.

9.14.9 Post Closure Plan

A Post Closure Plan is not applicable as no waste will be on-site when the permitted facility is closed.

10.0 CLOSURE PLAN

All new and active solid waste disposal facilities are required to have a Closure Plan. However the MSWTS is not required to have a Post Closure Plan

10.1 PLAN REQUIRED

Pursuant to OAC 252:515-25-2, the Closure Plan for the proposed facility is presented in Appendix E. The plan includes the following applicable requirements of OAC 252:515-25-32.

- Identification of site-specific closure activities, a description of how each will be performed, and a schedule for completing all activities.
- Calculation of closure cost estimates if applicable.
- Detailed plans for:
    - Identifying and removing from the site, all equipment, temporary buildings, and other improvements not designated as permanent in the permit application;
    - Reworking or replacing defective groundwater monitor wells, gas wells, and other defective monitoring equipment, if any;
    - Monitoring ground and surface water, if required;
    - Collecting and analyzing soil and water samples;
    - Disposing of final wastes and affected soils;
    - Decontamination of facility structures, if necessary;
    - Maintaining site security and access control, if post-closure monitoring is required;
    - Redesigning final closure in accordance with existing site conditions and applicable rules;
    - Preparing final closure certification and other required documents and notices; and
    - Performing any other tasks necessary to achieve final closure of the site.

10.2 RECORDS RETENTION

As required by OAC 252:515-25-3, all record copies of all Final Closure documentation shall be maintained and will be found at the site.

10.3 TIME LINES

Pursuant to OAC 252:515-25-33, the ODEQ will be notified in writing prior to beginning Final Closure proceedings. As required, closure activities shall begin no later than 90 days after final receipt of wastes. Closure shall be completed within 180 days after closure activities are initiated.

10.4 CERTIFICATE OF FINAL CLOSURE

As required by OAC 252:515-25-34, a Certificate of Final Closure will be submitted to the ODEQ after completion of closure activities. The Certificate will:

- Be signed by the owner/operator;
- State that the facility was closed according to the closure plan, the permit, and applicable rules;
- Contain a closure report with related drawings, plans, or specifications describing how closure was performed; and
- Indicate whether inspection of gas, groundwater, or surface water monitoring has shown the presence of elevated levels of any constituent or if any evidence of contamination related to site operations has been found and, if so, what corrective measures were taken.

10.5 FINAL CLOSURE

Per OAC 252:515-25-35, the ODEQ must approve the Final Closure.

10.6 COUNTY LAND RECORDS

A notice to the Pontotoc County Assessor shall be submitted as per OAC 252:515-25-36.

11.0 WASTE EXCLUSION PLAN

Pursuant to OAC 252:515-29-1, a Waste Exclusion Plan has been prepared and is found in Appendix F.

APPENDIX A

GENERAL INFORMATION

APPENDIX A-1

GENERAL INFORMATION DISCLOSURE STATEMENT

DISCLOSURE STATEMENT FORM

INFORMATION AND INSTRUCTIONS: The Solid Waste Management Act requires applicants to provide the Department of Environmental Quality with information about themselves, any officer, director or partner, any person employed by the applicant as general or key manager who directs the operations of the site which is the subject of the application, and any person owning or controlling more than five percent (5%) of the applicant's debt or equity. By law, the "Disclosure Statement" must be completed by all applicants for the issuance or transfer of any solid waste permit.

If the applicant is a publicly held company, it does not need to submit a disclosure statement, but only need submit the most recent annual (SEC Form 10-K) and quarterly reports (SEC Form 10-Q) required by the Securities and Exchange Commission (SEC), which provide information regarding legal proceedings in which the applicant has been involved. However, the applicant must submit such other information as the Department may require that relates to the competency, reliability, or responsibility of the applicant, officers, directors, or other persons as set out above.

PLEASE PROVIDE THE FOLLOWING INFORMATION: (If additional space is required to answer any of the following questions, please make attachments as needed.)

(1) Name of facility: City of Ada Municipal Solid Waste Transfer Station

(2) Applicant's full name and social security number:
City of Ada

(3) Applicant's business address: 231 Townsend Ada OK 74820

(4) Applicant's business telephone number: 580-436-6300 ext 253

(5) Applicant's form of business:
_____ publicly-held corporation;
_____ privately-held corporation;
_____ partnership or sole proprietorship;
__X__ municipality or public agency;
_____ other: _____

(6) Is Applicant a publicly-held company required to file annual reports with the Securities and Exchange Commission, or a wholly-owned subsidiary of such a company?
_____ yes ___✓___ no

(7) If Applicant answered "yes" to question (6) above, Applicant is required to submit copies of the most recent annual and quarterly reports required by the SEC *that provide information regarding legal proceedings in which Applicant has been involved.* In addition, list below, the name and business address of any person employed by the Applicant as a general or key manager who directs the operations of the site or facility which is the subject of the application.

(**NOTE**: If Applicant is required to submit SEC reports under this section, no further reporting is required under the disclosure statement requirement, and Applicant should skip to the "Certification and Oath" section on the last page of this form. Applicant should submit copies of any SEC reports as an attachment to this form to be submitted as part of the permit application. If Applicant answered "no" to question (6) above, Applicant is required to complete all remaining sections of this Form.)

(8) Full name, business address and social security number of all affiliated persons:
(**NOTE**: "Affiliated person" means:
(a) any officer, director, or partner of the applicant;
(b) any person employed by the applicant as a general or key manager who directs the operations of the site or facility which is the subject of the application; and
(c) any person (including corporations, partnerships, etc.) owning or controlling more than five (5) percent of the Applicant's debt or equity.):

Gary Kinder, P.E.
231 S. Townsend
Ada, OK 74820

SS # [redacted]

(9) Full name and address of any legal entity in which the Applicant holds a debt or equity interest of at least 5 percent, or which is a parent company or subsidiary of the Applicant, and a description of the ongoing organizational relationships as they may impact operations within the State:

None

(10) Description of the experience and credentials of the Applicant and any "affiliated person", including any past or present permits, licenses, certifications, or operational authorizations relating to environmental facility regulation:

Entity has multiple permits to operate landfill, prior landfill, water treatment and solid waste.

(11) Listing and explanation of any administrative, civil or criminal legal actions against the Applicant or any affiliated person which resulted in a final agency order or final judgment by a court of record

including any final order or judgment on appeal in the ten (10) years immediately preceding the filing of the application relating to solid or hazardous waste. Such action shall include, without limitations, any permit denial or any sanction imposed by a state regulatory authority or the U.S. Environmental Protection Agency:

Any actions/ Consent orders would be in ODEQ possession as they are the regulating agency. None for EPA.

(12) Listing of any federal environmental agency and any state environmental agency that has or has had regulatory responsibility over Applicant:

USEPA
ODEQ

CERTIFICATION AND OATH

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Gary Kinder
(Printed or Typed) Name of Applicant or Agent

8-6-19
Date

Gary Kinder
Signature of Applicant or Agent

City Engineer
Title

ACKNOWLEDGMENT

State of Oklahoma)
) ss.
Pontotoc County)

Before me, the undersigned, in and for said county and state, on this 6th day of August, 2019, personally appeared GARY KINDER, to me known to be the identical person who executed the within and foregoing instrument, and acknowledged to me that _____ executed the same as _____ free and voluntary act and deed for the uses and purposes therein set forth.

Trudy Nevland
Notary Public

My commission expires:

7-9-22

Notary Public, State of Oklahoma
TRUDY NEVLAND
Pontotoc County, Oklahoma
Commission #10005541

:\DisclStmtFORM.doc
12/00

APPENDIX A-2

GENERAL INFORMATION
ODEQ APPLICATION FORM

APPLICATION FOR A Municipal Solid Waste Transfer Station PERMIT

Date: February 6, 2019 County: Pontotoc County

Send to:
Solid Waste Permitting Unit
Waste Management Division
Dept. of Environmental Quality
707 N. Robinson (PO Box 1677)
Oklahoma City, OK 73101-1677

FOR DEQ USE

DEQ Log No. _____
No. Copies _____

Date Received: _____

City of Ada proposes to establish, construct, operate, and maintain
(Applicant's Name)
the Ada Municipal Solid Waste Transfer Station, located at See attachment
(Facility Name) *(Exact legal description:*

metes & bounds, platted lot, or land survey. Append extra sheets if necessary)

in Pontotoc County, Oklahoma, and hereby makes application for a permit to establish, construct, operate, and maintain a Municipal Solid Waste Transfer Station as required by **Oklahoma Solid Waste Management Act** and Rules pursuant thereto.

Brief description of application:

Permit a new Municipal Solid Waste Transfer Station that will accept municipal solid waste.

Applicant or Authorized Agent:
Gary Kinder
Signature

Gary Kinder
Typed Name

Address: 231 S Townsend
City: Ada State: OK

Date signed: 4-23-19
Phone: (580) 436-6300 ext 253

Preparing Engineer:
Jeff A. Shepherd
Signature

Jeff A. Shepherd, P.E.
Typed Name

Address: 4045 NW 64th St
City: Oklahoma City State: OK

Date signed: 08/09/2019
Phone: (405) 463-7607

Facility Address (if any): _____

DEQ USE ONLY

July 2016
DEQ Form #515-010

VERIFICATION[1]

STATE OF OKLAHOMA)
) ss
COUNTY OF Pontotoc)

Gary Kinder, of lawful age, being first duly sworn, upon oath state that I have read the foregoing APPLICATION FOR A Municipal Solid Waste Transfer Station PERMIT, that I am familiar with the matters set forth therein, and that the same are true to the best of my information and belief.

Gary Kinder
Applicant

Subscribed and sworn to before me this 6th day of August, 2019,

by GARY KINDER (Applicant or legal representative).

Trudy Nevland
Notary Public

My commission expires:

7-9-22

Notary Public, State of Oklahoma
TRUDY NEVLAND
Pontotoc County, Oklahoma
Commission #10005541

[1] This Verification is required for a Tier III application.

LEGAL DESCRIPTION:

A tract of land lying in the Northeast Quarter (NE/4) of the Northwest Quarter (NW/4) of Section Twenty-four (24), Township Four (4) North, Range Five (5) East of the Indian Meridian, Pontotoc County, Oklahoma, and being more particularly described as follows:

COMMENCING at the northeast corner of the NW/4 of said Section 24;

THENCE South 00°38'37" East, along the east line of said NW/4, a distance of 275.00 feet;

THENCE South 89°21'23" West, perpendicular to said east line, a distance of 81.00 feet to the POINT OF BEGINNING;

THENCE South 00°38'37" East, parallel with said east line, a distance of 359.50 feet;

THENCE South 89°21'23" West, perpendicular to said east line, a distance of 438.00 feet;

THENCE North 00°38'37" West, parallel with said east line, a distance of 359.50 feet;

THENCE North 89°21'23" East, perpendicular to said east line, a distance of 438.00 feet to the POINT OF BEGINNING.

Said described tract of land contains an area of 157,461 square feet or 3.6148 acres, more or less.

APPENDIX A-3

GENERAL INFORMATION
LANDOWNER NOTIFICATION AFFIDAVIT

DEQ LANDOWNER NOTIFICATION AFFIDAVIT

Tier I, II, or III permit applications in which the applicant does not own all the land subject to the application must notify the owner(s) of leases and/or pipeline right-of-ways. The basis for this requirement is Title 27A of the Oklahoma Statutes, § 2-14-103(9), as described in OAC 252:004-7-13(b).

Please note that you MUST fill out and return this affidavit even if you don't have to give any landowner notice.

A	NOTICE TO THE LANDOWNER(S) IS NOT REQUIRED because: (check one)		
	My application does not involve any land.	x	My application involves only land owned by me (or applicant business).

OR

B	NOTICE TO THE LANDOWNER(S) IS REQUIRED because the land is owned by someone other than myself or the applicant business AND I HAVE NOTIFIED the following (check one):						
	Landowner(s)				Lessor or Administrator or Executor of the land		
METHOD OF DELIVERY (check one):							
	Actual notice, for which I have a signed and dated receipt						
	Service by Sheriff or private process server, for which I have an affidavit						
	Service by certified mail, restricted delivery, for which I have a signed return receipt						
	Legal publication, for which I have an affidavit of publication from the newspaper, because the landowners could not be located through due diligence						
MY RIGHT TO USE THIS LAND is by:							
	Lease		Easement		Other, Specify		

LANDOWNER AFFIDAVIT CERTIFICATION			
I, as the applicant or an authorized representative of the applicant, hereby certify that notice to the landowner(s) about the permit application for the facility described below was provided per Option A or B above.			
Company Name	City of Ada	Facility Name	City of Ada Municipal Solid Waste Transfer Station
Facility Address or Legal Description.	NE 1/4 NW 1/4 of Section 24, T4N, R5E		
Responsible Official (signature)	Gary Kinder	Date Signed	8/9/19
Responsible Official (typed)	Gary Kinder	Title	City Engineer

If the landowner notice applies to your application (Option B Above) you can send the following form to them as your notice:

NOTICE TO LANDOWNER OF FILING

Dear Landowner: (Name)_____

(Applicant name)_____ has filed a permit application with the Oklahoma Department of Environmental Quality for (Name)_____ facility.

This application involves the land owned by you located at:

Address or Legal Description:_____

_____

Signed:_____ Date:_____

APPENDIX A-4

GENERAL INFORMATION
ODEQ PERMIT APPLICATION CHECKLIST

APPLICATION REVIEW **TRANSFER STATION & PROCESSING FACILITIES CHECKLIST** **LAND PROTECTION DIVISION** **SOLID WASTE PROGRAM** **OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**	Facility Name: City of Ada Municipal Solid Waste Transfer Station County: Pontotoc Date: February 2019	OAS 252:515 PROCESSING FACILITIES
	Administrative Reviewer: _____ Start Date: _____ Completion Date: _____ Technical Reviewer: _____ Start Date: _____ Completion Date: _____ Issuance Deadline: _____	DEQ Form Number 515-101 Shaded areas for DEQ use only

ITEM #	STATE REGULATIONS OAC 252:515 OR GUIDELINES	GENERAL DESCRIPTION	INFO LOCATION	TECHNICALLY COMPLETE Yes/No/NA	REMARKS
FILING OF APPLICATION					
PUBLIC PARTICIPATION AND NOTICE					
Information regarding the pending application shall be made available to the public as required in O.S. 27A Sec. 2-14-301, et. Seq., OAC 252:4-7-13. This notice is to allow concerned individuals an opportunity to voice opposition or support.					
1	27A O.S. 2-14-301,302,303 & 252:4-7-13(d)	Public Notice: Shall be made with proof submitted to the Department within twenty (20) days of publication, consisting of a copy of the publication in one (1) newspaper, local to the facility site, in addition to an affidavit from the publishers showing the date of publication.	Appendix A		
CERTIFICATION					
2	252:515-3-33 & 252:4-7-13(b)	Oath Required: Applicant shall sign the permit application under oath on forms provided by the DEQ.	Appendix A		
3	252:515-3-34(a),(b),(c)	Legal Right to Property: (a) Right of Access: The permit application for a new solid waste disposal facility, or expansion of the permit boundaries of an existing solid waste facility, must contain: (1) A true and correct copy of a legal document filed in the county in which the facility if located, possessor a legal right to access and use the property including any on- or off-site soil borrow areas, throughout the life of the site and the required post-closure monitoring period; and (2)A certification, by affidavit, that the applicant owns the real property, has current lease, or easement to accomplish the permitted purpose, or has provided legal notice to the landowner. (b) Option for Use: If an option for right of access if predicated upon the issuance of a permit prior to the exercise of that option, then the applicant must submit a copy of the option with the permit application. Once the permit has been issued, the applicant must comply with (A) of this Section prior to beginning construction. (c)Easement to the DEQ: Unless the property owner is a unit of government, a temporary easement shall be executed allowing the DEQ and/or its contractors the right to access the property to perform closure, post-closure monitoring, or corrective action in the event of default by the owner/operator.	Appendix A		

4	252:515-3-35(a),(b),(c) & 27A O.S. 2-10-301(e)	Engineer of Record: (a) Professional engineer seal required. Maps, drawings, surveys, calculations, information, and data submitted in support of permit applications for new solid waste disposal facilities or modifications of existing permits, must be prepared and stamped or sealed by a professional engineer licensed in the State of Oklahoma if the facility serves a population equivalent of 5,000 persons or more. (b) Seal placement: The engineer's stamp or seal shall be placed on the application page. Each map and drawing included in the application shall be stamped or sealed in accordance with the requirements of the State Board of Registration of Professional Engineers and Land Surveyors. (c) Failure to Seal: Documents that are not stamped or sealed in accordance with this Section will be returned to the applicant.	Appendix A		
GENERAL INFORMATION					
	252:515-3-36(a)	Permit Applications (a) New applications: A permit application for a new solid waste disposal facility shall include all the information required by the Oklahoma Uniform Environmental Permitting Act, including:			
5	252:515-3-36(a)(1)	The owner/operator's name, mailing address and phone number:	Section 4		
6	252:515-3-36(a)(2)	The name by which the facility will be known, the mailing address of the facility, the street address of the facility (if different from the mailing address), and the facility phone number;	Section 4		
7	252:515-3-36(a)(3)	A disclosure statement completed in accordance with OAC 252:515-3-31(g);	Appendix A		
8	252:515-3-36(a)(4)	A legal description, by metes and bounds; section, township, and range, or parts thereof; or book and page number of plat records for platted property, of: (A) the proposed permit boundary; (B) the proposed waste processing and/or disposal areas; and (C) both on- and off-site soil borrow areas, if applicable;	Section 4 and Appendix A		
9	252:515-3-36(a)(5)	Latitude and longitude of all corners of the permit boundary and the facility entrance;	Section 4		
10	252:515-3-36(a)(6)	The location of the site from the nearest town or city;	Section 4		
11	252:515-3-36(a)(7)	A description of all processing, storage, and disposal operations and units;	Section 4		
12	252:515-3-36(a)(8)	A description of the anticipated waste streams and amount received per day;	Section 4		
13	252:515-3-36(a)(9)	The names of the municipalities and/or counties included in the service area;	Section 4		

14	252:515-3-36(a)(10)	The estimated population served to be determined as follows: (A) the population of each town or city served by the disposal facility, as published in the last decennial census; or (B) the population equivalent served, calculated by dividing the anticipated amount of waste received per day by 4.4 pounds per person per day;	Section 4		
15	252:515-3-36(a)(11)	The types of road construction and materials to be used to ensure that all access roads within the site are passable during inclement weather by normal vehicular traffic;	Section 4		
16	252:515-3-36(a)(12)	A list of anticipated heavy equipment to be used in the construction and operation of the site;	Section 4		
17	252:515-3-36(a)(13)	Maps and drawings as required by parts (5) and/or (7) of 252:515-3-36(a)	Appendix B		
18	252:515-3-36(a)(14)	Data, plans and specifications for the following: (A) a demonstration the proposed facility meets the location restrictions of Subchapter 5 of this Chapter; (B) an operational plan describing how compliance with the operational requirements of Subchapter 19 of this chapter, as applicable to the proposed facility, will be achieved; (C) a plan describing how compliance with the storm water management requirements of Subchapter 17 of this Chapter will be achieved; (D) plans for closure of the facility in accordance with Subchapter 25 of this Chapter; and (E) a plan for achieving compliance with the aesthetic enhancement requirements of OAC 252:515-3-37; and	(A) Section 6 and Appendix C (B) Section 7 (C) Section 8 and Appendix D (D) Section 10 and Appendix E (E) Section 9 and Appendix B		
19	252:515-3-36(a)(15)	Establishment of financial assurance in accordance with Subchapter 27 of this Chapter.			
20	252:515-3-36(b)	Information not identified: The DEQ may require the applicant to submit additional data, revise design specifications or propose environmental safeguards as necessary to meet DEQ rules for the protection of human health and the environment.	NA		
21	252:5115-3-36(c)	Permit modification applications: An applicant requesting a modification to an existing permit shall submit information identified in this Part relating to the proposed modification.	NA		
22	252:515-3-37	Aesthetic enhancement: Applications for new permits or expansions of an existing permit boundary, shall include plans to enhance the visual harmony of the new disposal facility or the expansion area with the surrounding area, and reduce the transmission of dust and noise from the facility. Such plans may include placement of berms, fences, shrubbery, trees, or other such materials to achieve desired result.	Section 9 and Appendix B		
MAPS & DRAWINGS					

23	252:515-3-51(a)	Applicability: The maps and designs identified in this Part shall be submitted with the permit applications for: (1) all new solid waste disposal facilities; (2) expansions of permit boundaries of existing solid waste disposal facilities; (3) expansions of waste handling or disposal boundaries of existing solid waste disposal facilities; and (4) any other modification to an existing permit where the data originally submitted would be made ambiguous, inaccurate, or out of data by the proposed modification.	Appendix B		
24	252:515-3-51(c)	Illegible: the permit application will be considered administratively incomplete if any maps or drawings submitted are not legible.	Appendix B		
25	252:515-3-51(d)	Map sequence: All maps and designs shall be submitted in the permit application in the sequence identified.	Appendix B		
26	252:515-3-51(e)	Map scale: Unless otherwise identified, all maps submitted as part of a permit application shall be prepared at a scale of one inch equals one hundred feet (1" = 100'). An alternative scale may be used with approval of the DEQ.	Appendix B		
27	252:515-3-51(f)	Map details: (1) All maps shall show as a minimum, legend, title, north arrow, permit boundary, buffer zone, and boundaries of waste disposal or processing areas. (2) If applicable, the locations of groundwater monitoring wells, and gas monitoring probes shall be identified.	Appendix B		
28	252:515-3-52	General location map: The permit application shall include a county highway map published by the Oklahoma Department of Transportation showing the facility location and any airports within six miles of the facility. If the facility is located within a municipality and a municipal map with better information is available, then it may be used.	Appendix B		
29	252:515-3-53	Flood plain map: The permit application shall include a flood plain map from one of the following sources depicting the limits and elevations of any 100-year flood plain on or within one mile of the permit boundary of the proposed facility or expansion area: (1) Flood Insurance Rate maps published by the Federal Emergency Management Agency, or maps prepared by the U.S. Army Corps of Engineers, Flood Plain Management services; (2) Maps of Flood Prone Areas published by the U.S. Geological Survey; or (3) site specific determinations by the U.S. Army Corps of Engineers at the request of the applicant.	Appendix B		

30	252:515-3-54(a) & (b)	Quadrangle topographic map: (a) Required map: The permit application shall include an original U.S. Geological Survey 7.5 minute series topographic quadrangle map. (1) If 7.5 minute series maps have not been printed, then 15 minute series may be used. (2) If the disposal facility is located on the edge of a quadrangle, then adjoining maps shall be provided. (b) Required details: The quadrangle topographic map shall clearly depict: (1) the location of the facility permit boundaries; (2) access routes within one mile of the facility; (3) homes and buildings within one mile of the facility; (4) public water and wastewater collection, treatment, and distribution facilities within one mile of the facility; (5) receiving waters and surface variations within one mile of the facility; and (6) water wells, including private and municipal, potable and irrigation water within one mile of the facility.	Appendix B		
31	252:515-3-55(a), (b) & (c)	Existing contour map: (a) Required map: The permit application shall include a constructed map showing the topographic contours prior to any operations at the facility. (b) Contour intervals: The contour interval on the map shall not be greater than two feet. (c) Required details: The existing contour map shall show the location and quantities of surface drainage entering and exiting the facility, and the locations of all boreholes with their surface elevations.	Appendix B		
32	252:515-3-56(a) & (b)	Site map: (a) Required map: The permit application shall include a site map, which may be the existing contour map. (b) Required details: The site map shall show the following, as applicable to the facility: (1) the dimensions of the permit boundary as indicated by the legal description; (2) the receiving processing, storage or disposal areas; (3) buffer zones; (4) the locations and surface elevations of each borehole, monitor well, test well, monitoring site, test pit, sampling site and permanent benchmarks; (5) the surface and top casing elevations for each monitoring well or gas probe; (6) the surface drainage, including location of diversion ditches, dikes, dams, pits, ponds, lagoons, berms, terraces, and other relevant information; (7) the location of fencing and gates, utility lines, pipelines, and easements; (8) the access roads into and on the site; (9) employee and equipment shelters; and (10) on- and off-site soil borrow areas.	Appendix B		

33	252:515-3-57	Design drawings: The permit application shall include, as necessary, design drawings and specifications for: (1) receiving, processing, storage or disposal areas; (2) liner construction; (3) Leachate collection systems; (4) typical well installation; (5) dike sections; (6) drainage channels; (7) groundwater monitoring wells, gas monitoring probes, and piezometers; (8) retention structures or other groundwater and surface water protection measures; and (9) any other design drawings or specifications necessary to describe the proposed activities for the facility.	Appendix B		
LOCATION RESTRICTIONS					
34	252:515-5-31 (a)	Scenic Rivers: Not to be located within the drainage basin of any river designated under Oklahoma Scenic Rivers Commission (OSRC) Act unless statement is obtained from OSRC or Oklahoma Tourism & Recreation Department.	Section 6 and Appendix C		
35	252:515-5-31 (b)	Recreation/Preservation Areas: Not to be located within one-half (1/2) mile of area dedicated & managed for public recreation or natural preservation by any governmental agency. Exceptions granted if application includes statement from appropriate agency that proposed site not expected to adversely affect recreation or natural area.	Section 6 and Appendix C		
36	252:515-5-31 (c)	Endangered & Threatened Species: Statement required from Oklahoma Department of Wildlife Conservation (ODWC) and Oklahoma Biological Survey (OBS) concerning endangered or threatened wildlife or plant species within one (1) mile of proposed site. If exist, impact statement required.	Section 6 and Appendix C		
37	252:515-5-32(a)	100-year flood: Solid waste disposal facility should not be located in the 100-year flood plain. Variance available for transfer station with requirement that no waste retained during non-operating hours.	Section 6 and Appendix C		
38	252:515-5-32(b)	Public water supply:	Section 6 and Appendix C		
39	252:515-5-32(c)	Wellhead protection area	Section 6 and Appendix C		
40	252:515-5-32(d)	Wetlands: Not to be located in wetlands. Letter required from Oklahoma Conservation Commission (OCC) stating proposed site not located in wetlands.	Section 6 and Appendix C		
41	252:515-13-51	Leachate Management	Appendix B		

42	252:515-17-3	Discharges	Appendix B		
43	252:515-5-52(a)	Utility Separation: A minimum horizontal separation of twenty-five (25) feet shall be maintained between a landfill disposal site and any above-ground or underground pipeline; or transmission line.	NA		
44	252:515-19-31(a), (b), (c), & (d)	Prohibited Wastes: (a) Hazardous, radioactive, regulated PCB waste. The disposal of any quantity of hazardous, radioactive, or regulated polychlorinated biphenyl (PCB) waste at a solid waste disposal facility is prohibited. (b) Regulated medical waste. The disposal of regulated medical waste at a solid waste disposal facility is prohibited, unless the facility is a permitted regulated medical waste processing facility. (c) Asbestos. The disposal of friable asbestos waste at a solid waste disposal facility is prohibited unless the facility is a MSWLF or NHIW landfill specifically authorized by the permit to accept such waste. (d) NHIW. The disposal of NHIW at a solid waste disposal facility is prohibited, unless specifically authorized by the permit.	Section 9 and Appendix F		
45	252:515-19-32	Public Access Control: Control public accessand prevent unauthorized traffic anduncontrolled dumping by using artificialand/or natural barriers.	Section 9 and Appendix F		
46	252:515-19-33(c)	Measuring Waste Procedure: All waste to be measured by either weight or volume (cubic yards).	Section 9 and Appendix F		
47	252:515-19-35(a) & (b)	Litter: Blowing litter to be controlled so as not to leave the site. All facility users shall adequately cover loads to prevent blowing litter. Entire site to be policed daily.	Section 9 and Appendix F		
48	252:515-19-36(a), (b) & (c)	Air Quality: (a) All disposal facilities shall be operated in compliance with the Oklahoma Clean Air Act, rules of the Air Quality Division of the DEQ, and any other requirements of an approved State Implementation Plan. (b) Open burning of solid waste is prohibited. (c) Dust control: All disposal facilities shall be operated to prevent the discharge of any visible fugitive dust emissions beyond the property boundaries so as to damage or interfere with the use of adjacent properties, or to cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards.	Section 9		

49	252:515-19-37(b)	Disease Vector Control: On-site populations of disease vectors shall be controlled using techniques appropriate for the protection of human health and the environment.	Section 9		
50	252:515-19-38(b) & (c)	(b) Buffer Zones: Unless otherwise specifiedin this Subsection, all disposal facilities shallbe designed and maintained with a waste-freebuffer zone at least 50 feet in width betweenall waste disposal an/or handling areas andadjacent property. The buffer zone shall becontained within the permit boundarydescribed in the permit application. (c) Use of buffer zone. Buffer zones and9 other restricted areas may be used for thetemporary collection and storage of source separated recyclable materials, if such use isdescribed in an approved recycling plan.	Section 9 and Appendix B		
51	252:515-19-39(a)	Salvage and recycling: Salvage/recycling operations shall be conducted in accordance with a written plan approved by the DEQ.	Section 9		
52	252:515-19-40(a)	Recordkeeping and reporting: An operating record shall be maintained near each solid waste disposal facility, containing all records concerning the planning, construction, operation, closing, and post-closure monitoring of the facility. Such records shall be maintained until the post-closure monitoring period is terminated and shall include, but are not necessarily limited to, those records required to be maintained and/or submitted to the DEQ by Subchapters 7, 9, 11, 13, 15, 29, and 31 of this Chapter.	Section 9		
53	252:515-19-91(a)	Processing: All putrescible waste delivered to a processing facility shall be processed within 24 hours.	Section 9		
54	252:515-19-92	Large or Bulky Items: Provisions to be made for large or bulky items not suitable for facility operations. Narrative of handling procedure shall be included.	Section 9		
55	252:515-19-93	All processed waste and residues produced by the facility shall be appropriately characterized as hazardous or non-hazardous and disposed in a properly permitted disposal facility.	Section 9		
CLOSURE AND POST CLOSURE CARE					
56	252L515-25-2(a)	Closure plan required: A closure plan shall be submitted to the DEQ for approval describing how compliance with the requirements of Part 3 of this Subchapter will be achieved.	Section 10 and Appendix E		
57	252:515-25-2(b)	Post-closure plan: if required shall be submitted with the operational plan.	Section 10 and Appendix E		
58	252:515-25-2(c)	Plan amendments: An amended closure or post-closure plan shall be submitted to the DEQ for approval: (1) when a cost estimate adjustment is required; or (2) with each application for a modification of the permit when such modification will affect closure or post-closure duties or requirements.	Section 10 and Appendix E		

59	252:515-25-3(a) & (b)	Records retention: (a) Final closure: Copies of all closure documentation shall be maintained on fill at the site or at the owner/operator's place of business until the DEQ approves the completion of final closure. (b) Post-closure: If post-closure monitoring is required, final closure documentation shall be maintained through the post-closure monitoring period.	Section 10 and Appendix E		
60	252:515-25-4	Corrective Action: If at any time during closure activities or post-closure monitoring, inspection of the facility and/or review of monitoring data indicates an actual release of contaminants into the environment, the DEQ may require corrective action to eliminate or mitigate such a release.	Section 10 and Appendix E		
61	252:515-25-31	Performance standard: The facility shall be closed in accordance with the approved closure plan and in a manner that minimizes the need for further maintenance and controls and minimizes post-closure escape of waste and waste constituents into the environment.	Section 10 and Appendix E		
62	252:515-25-32(a)	Contents of closure plan: (a) The closure plan for all disposal facilities shall include the following as a minimum: (1) identification of site-specific closure activities, a description of how each is expected to be performed, and a schedule for completing all activities; (2) calculation of closure cost estimates in accordance with Subchapter 27 of this Chapter, unless the facility is a transfer station, processing facility or composting facility that principally manages municipal solid waste, or is a yard waste composting facility; (3) an estimate of the maximum inventory of waste ever on-site over the active life of the facility; (4)detailed plans for (A) identifying and removing from the site, all equipment, temporary buildings and other improvements not designated as permanent in the permit application; (B) reworking or replacing defective groundwater monitor wells, gas wells, and other defective monitoring equipment, if any; (C) monitoring ground and surface water, if required; (D) collecting and analyzing soul and water samples; (E) disposing of final wastes and affected soils; (F) decontamination of facility structures, if necessary; (G) maintaining site security and access control, if post-closure monitoring is required; (H) redesigning final closure in accordance with existing site conditions and applicable rules; (I) preparing final closure certification and other required documents and notices; and (J) performing any other tasks necessary to achieve final closure of the site.	Section 10 and Appendix E		

63	252:515-25-33(a)	DEQ notification: The DEQ shall be notified in writing prior to beginning final closure of the facility.	Section 10 and Appendix E		
64	252:515-25-33(b)	Beginning closure activities: closure activities shall begin no later than 90 days after final receipt of wastes at the facility or final receipt of wastes into a disposal cell, as applicable.	Section 10 and Appendix E		
65	252:515-25-33(c)	Completing closure activities: (1) 180 days: closure activities shall be completed according to the approved closure plan within 180 days after closure activities are initiated. (2) Extensions allowed: extensions of the closure period may be granted by the DEQ if the owner/operator demonstrates that closure will, of necessity, take longer than 180 days and that all steps have been taken, and will continue to be taken, to prevent threats to human health or the environment from the unclosed cell or facility.	Section 10 and Appendix E		
66	252:515-25-34(a) & (c)	Certification of final closure	Section 10 and Appendix E		
67	252:515-25-35(a)&(b)	Final closure approval and extension periods	Section 10 and Appendix E		
69	252:515-25-52(a) &(b)	Extension of Post closure period	Section 10 and Appendix E		
70	252:515-25-53	Contents of post-closure plan, if applicable.	Section 10 and Appendix E		
71	252:515-25-54	Post-closure operational requirements, if applicable.	Section 10 and Appendix E		
72	252:515-25-55	Post-closure use of the property: (a) Maintain integrity (b) DEQ approval	Section 10 and Appendix E		
73	252:515-25-56	Certification of post-closure performance	Section 10 and Appendix E		
FINACIAL ASSURANCE					
74	252:515-27-2	Effective date of Financial assurance: (a) Closure and post-closure care: DEQ approved financial assurance for closure and post-closure care must be established prior to the initial receipt of waste or April 9, 1997, whichever is later. (b) Corrective action: DEQ approved financial assurance for corrective action must be established no later than 120 days after the corrective action remedy has been selected in accordance with Part 13 of OAC 252:515-9, or an alternative corrective action plan has been approved.			
75	252:515-27-3	Duty to maintain financial assurance			
76	252:515-27-5	Permit transfer with change of owner or operator			
77	252:515-27-6	Effect of non-renewal of, or failure to maintain or provide, financial assurance			
78	252:515-27-7	Substitute financial assurance s			
79	252:515-27-31 thru 33	Cost estimates, detailed, for Closure and post-closure			

80	252:515-27-71 & 252:515-27-72	Financial assurance mechanisms requirements and multiple mechanism allowablility			
81	252:515-27-73 thru 252:515-27-85	Allowable types of financial assurance: cash, certificate of deposit, trust fund, escrow account, surety bond, letter of credit, insurance, corporate financial test, local government financial test, corporate guarantee, local government guarantee, state approved mechanism			
WASTE EXCLUSION PLAN			Section 11 and Appendix F		
82	252:515-29-2	Waste exclusion plan required	Section 11 and Appendix F		
83	252:515-29-3(a)	Random inspections	Section 11 and Appendix F		
84	252:515-29-3(b)	Inspection records	Section 11 and Appendix F		
85	252:515-29-3(c)	Personnel training	Section 11 and Appendix F		
86	252:515-29-3(d)	Trained personnel on-site	Section 11 and Appendix F		
87	252:515-29-3(e)	Notification of rejected waste	Section 11 and Appendix F		
88	252:515-29-3(f)	Safe storage of prohibited wastes	Section 11 and Appendix F		
89	252:515-29-3(g)	Proper disposal of prohibited wastes	Section 11 and Appendix F		
90	252:515-29-3(h)	Verification of disposal of prohibited wastes	Section 11 and Appendix F		
91	252:515-29-4	Maintain records	Section 11 and Appendix F		

APPENDIX B

PERMIT DRAWINGS

CITY OF ADA

PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
PROPOSED CITY OF ADA TRANSFER STATION
231 S. TOWNSEND
ADA, OKLAHOMA 74820

TIER II PERMIT APPLICATION ~ PERMIT DRAWINGS

JUNE 2019

PREPARED BY:

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CEC PROJECT 183-660

SHEET INDEX

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

REVISION | DESCRIPTION | DATE:

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

COVER

DATE: 08/09/19 | DRAWN BY: Ray Farmer
PROJECT NO: 183-660
APPROVED BY: Jeff Shepherd

FILE: P:\2018\183-660\-CADD\DWG\EXISTING SITE CONDITIONS.DWG PLOTTED BY: FARMER, RAY PLOTTED ON: 08/09/19 12:10:00 PM

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION SITE

APPROXIMATE LOCATION OF EXISTING LANDFILL

0.5 MILES

1 MILE

UNION HILL

T.L.

Cr.

Spring

Brook

10.9

377

3E

99

3W

1.5

1

1.3

19

NORTH

0 1/4 MILE 1/2 MILE

SCALE: 1" = 1/4 MILE

- Interstate Highway
- US Highway
- State Highway
- Divided Highway - Asphalt
- Divided Highway - Concrete
- Asphalt
- Concrete
- Gravel
- Grade & Drain
- Unimproved
- Railroad

EXCERPT FROM PONTOTOC COUNTY GENERAL HIGHWAY MAP (2016), OKLAHOMA DEPARTMENT OF TRANSPORTATION, PLANNING DIVISION

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

REVISION	DESCRIPTION	DATE:

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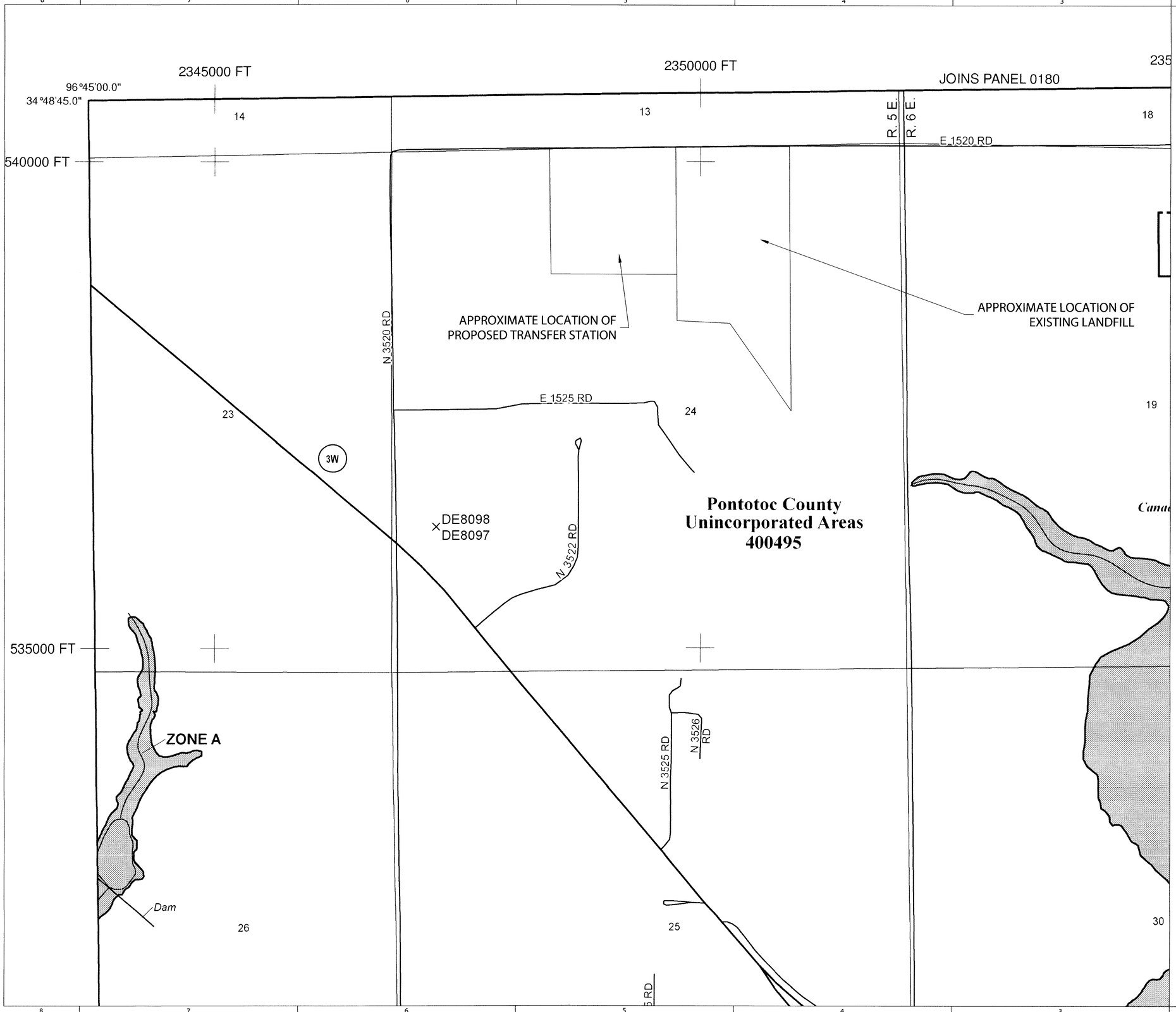
TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/09/19	DRAWN BY: Ray Farmer
PROJECT NO:		183-660
APPROVED BY:		Jeff Shepherd



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30" 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000 mN — 1000-meter Universal Transverse Mercator grid ticks, zone 14
- 6000000 FT — 5000-foot grid ticks: Oklahoma State Plane coordinate system, south zone (FIPSZONE 3501) Lambert Conformal Conic
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
July 17, 2012
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

NORTH

0 500' 1000'

SCALE: 1" = 500'

NFIP

PANEL 0190D

FIRM

FLOOD INSURANCE RATE MAP

PONTOTOC COUNTY, OKLAHOMA AND INCORPORATED AREAS

PANEL 190 OF 475
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ADA, CITY OF	400773	0190	D
PONTOTOC COUNTY UNINCORPORATED AREAS	400495	0190	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
40123C0190D

EFFECTIVE DATE
JULY 17, 2012

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA

CA NO.: 6429
EXPIRES 6/30/20

DATE:	DESCRIPTION	REVISION

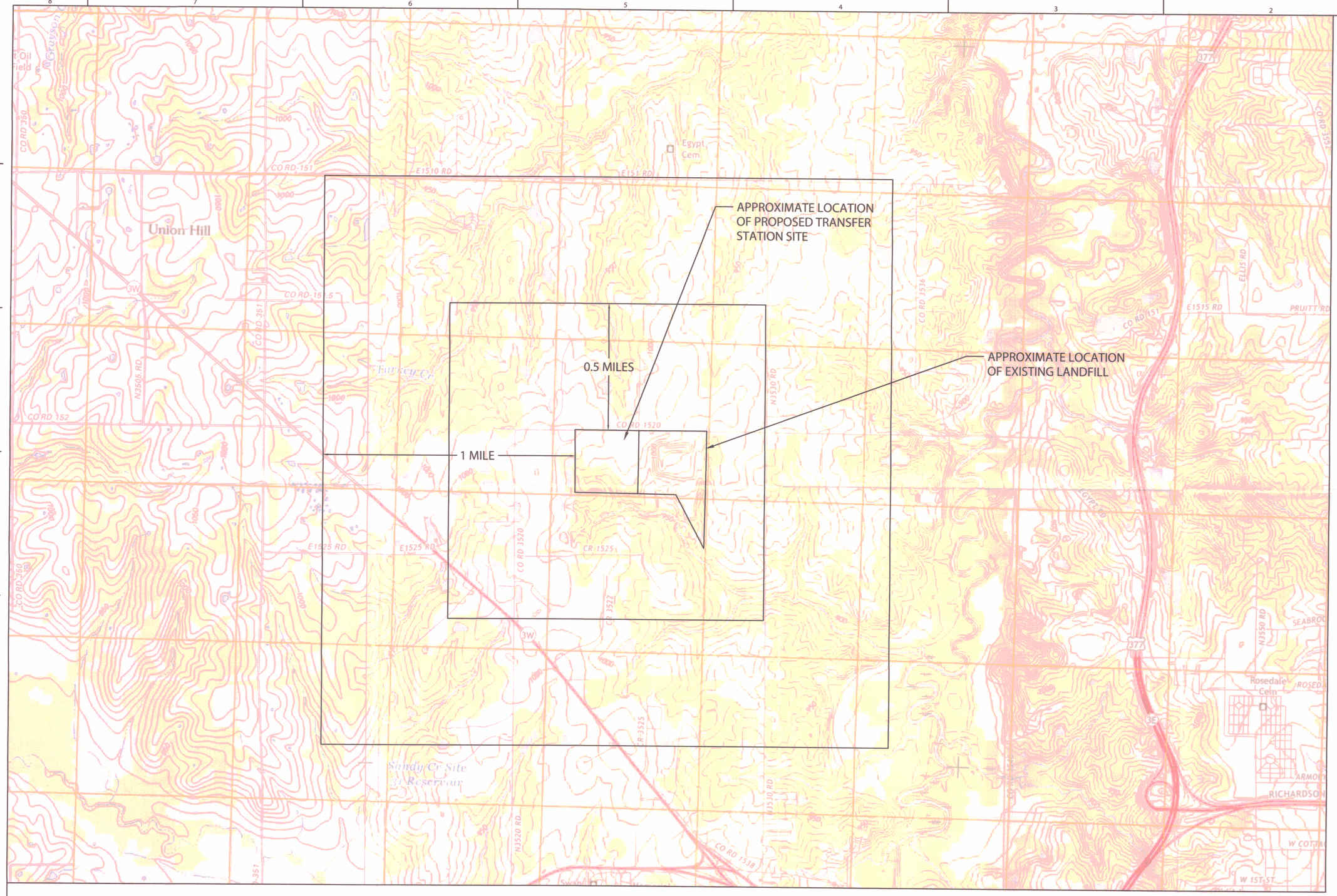
Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

APPROXIMATE LOCATION OF SITE
RELITIVE TO FEMA FLOOD PLAIN

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



EXCERPT FROM ADA, OKLAHOMA QUADRANGLE (2016),
U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

LEGAL DESCRIPTION: NE 1/4 NW 1/4 S24 T4N R5E PONTOTOC, COUNTY, OKLAHOMA

NORTH
0 1000' 2000'
SCALE: 1" = 1000'

REVISION	DESCRIPTION	DATE

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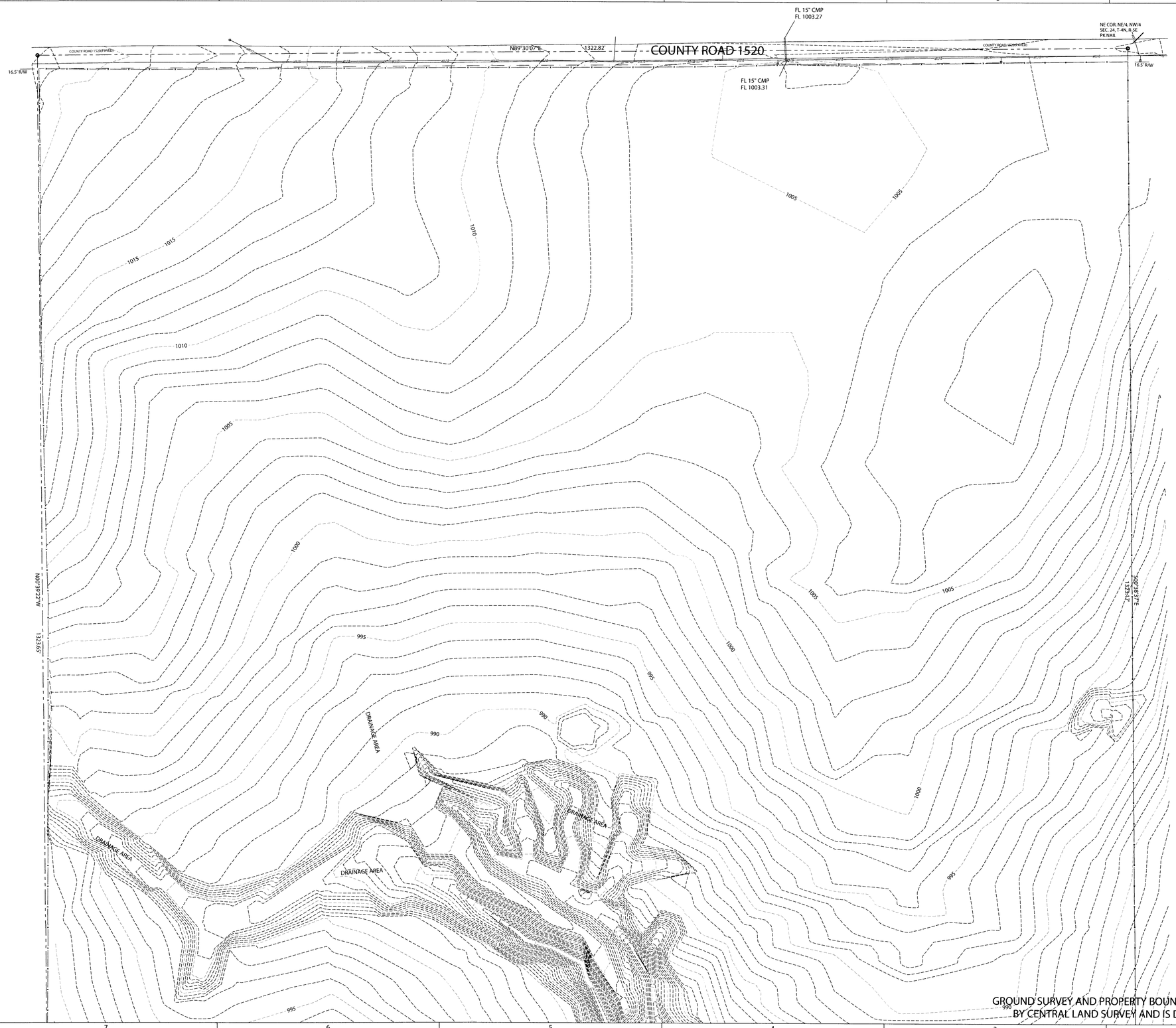
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

APPROXIMATE LOCATION OF PROPOSED SOLID WASTE TRANSFER STATION USGS TOPOGRAPHIC QUADRANGLE

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20



N
W E
S
NORTH
0 60' 120'
SCALE: 1" = 60'

EXISTING CONTOUR
PROPERTY BOUNDARY

LEGAL DESCRIPTION:

A TRACT OF LAND LYING IN THE NORTHEAST QUARTER (NE/4) OF THE NORTHWEST QUARTER (NW/4) OF SECTION TWENTY-FOUR (24), TOWNSHIP FOUR (4) NORTH, RANGE FIVE (5) EAST OF THE INDIAN MERIDIAN, PONTOTOC COUNTY, OKLAHOMA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE NW/4 OF SAID SECTION 24;

THENCE SOUTH 00°38'37" EAST, ALONG THE EAST LINE OF SAID NW/4, A DISTANCE OF 275.00 FEET;

THENCE
SOUTH 89°21'23" WEST, PERPENDICULAR TO SAID EAST LINE, A DISTANCE OF 81.00 FEET TO THE POINT OF BEGINNING;

THENCE SOUTH 00°38'37" EAST, PARALLEL WITH SAID EAST LINE, A DISTANCE OF 359.50 FEET;

THENCE
SOUTH 89°21'23" WEST, PERPENDICULAR TO SAID EAST LINE, A DISTANCE OF 438.00 FEET;

THENCE NORTH 00

THENCE NORTH 89°57'53" WEST, ALONG THE SOUTH LINE OF SAID NW/4, A DISTANCE OF 218.20 FEET TO THE POINT OF BEGINNING.

SAID DESCRIBED TRACT OF LAND CONTAINS AN AREA OF 142,890 SQUARE FEET OR 3.2803 ACRES, MORE OR LESS.

GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA

CA NO.: 6429
EXPIRES 6/30/20

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TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

EXISTING SITE CONDITIONS

DATE:	08/09/19	DRAWN BY: Ray Farmer
PROJECT NO:		183-660
APPROVED BY:		Jeff Shepherd

FILE: P:\2018\183-660\--CADD\DWG\EXISTING SITE CONDITIONS.DWG PLOTTED BY: FARMER, RAY PLOTTED ON: 08/09/19 12:10:30 PM

N89°30'07"E 1322.62

50' BUFFER

FL 15" CMP
FL 1003.31

16.5' R/W

50' BUFFER SURROUNDS PROPERTY (TYP.)

50' BUFFER

15' U/E

63'

60'

R25'

15' U/E

25'

30'

SCALE HOUSE

SCALE

100'

200'

FUTURE
RECYCLING FACILITY
FF:1005.5

125'

55'

R25'

200'

FUTURE
COMPOST PAD
FF:1005.5

100'

R115'

30'

R85'

FUTURE STORM WATER DETENTION POND

R124'

42.6'

R145'

15' U/E

R25'

30'

R100.00

R25.00

50.00

24'

50'X100'
CONCRETE PAD
SEE DETAIL 1/16

100'

TRANSFER STATION
FF:1010.5

100'

TUNNEL
FF:995.5

24'

R145'

R124'

15' U/E

TO LEACHATE STORAGE POND LOCATED AT CITY OF ADA LANDFILL

S00°38'37"E
1323.17

76'

276'

STORM WATER DETENTION POND

50' BUFFER

GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED
BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018

NORTH

0 40' 80'

SCALE: 1" = 40'

EXISTING CONTOUR
PROPOSED CONTOUR
PROPERTY BOUNDARY
CONTAMINATED WATER FLOW PATH

DATE:
DESCRIPTION
REVISION

Civil & Environmental Consultants, Inc.
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TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

PROPOSED SITE GRADING

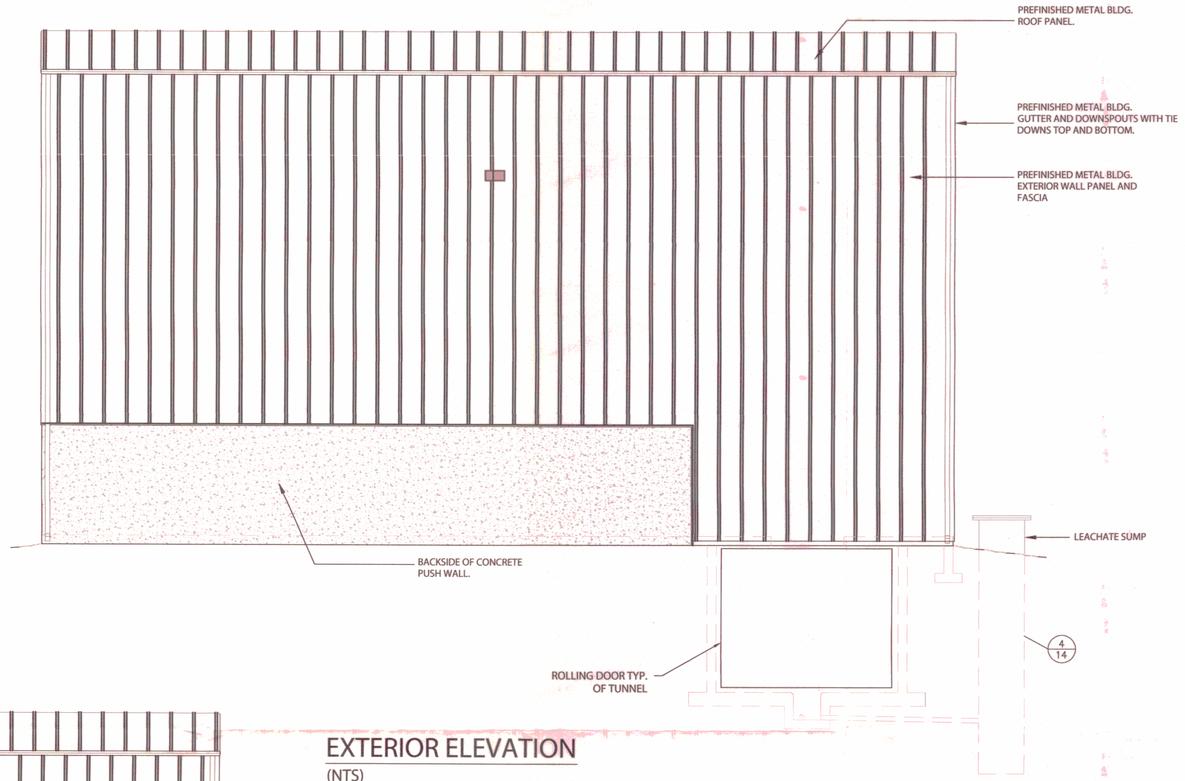
DATE: 08/09/19
DRAWN BY: Ray Farmer
PROJECT NO: 183-660
APPROVED BY: Jeff Shepherd

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA

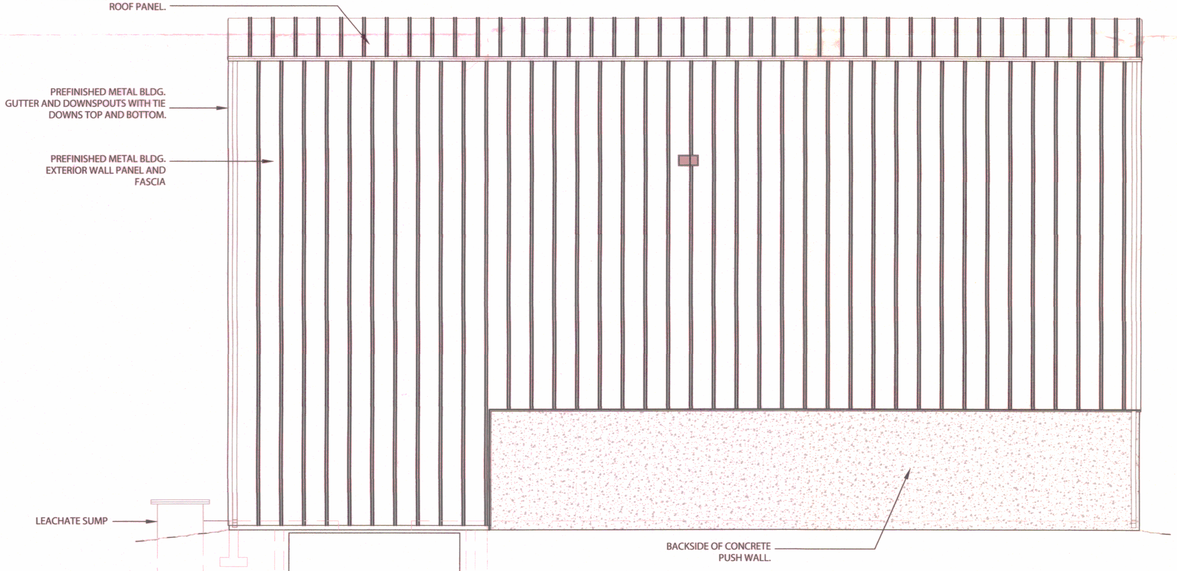
CA NO.: 6429
EXPIRES 6/30/20

6 of 16

FILE: P:\2018\183-660\-CADD\DWG\PROPOSED SITE GRADING PLAN.DWG PLOTTED BY: FARMER, RAY PLOTTED ON: 08/09/19 12:15:58 PM



EXTERIOR ELEVATION
(NTS)



EXTERIOR ELEVATION
(NTS)

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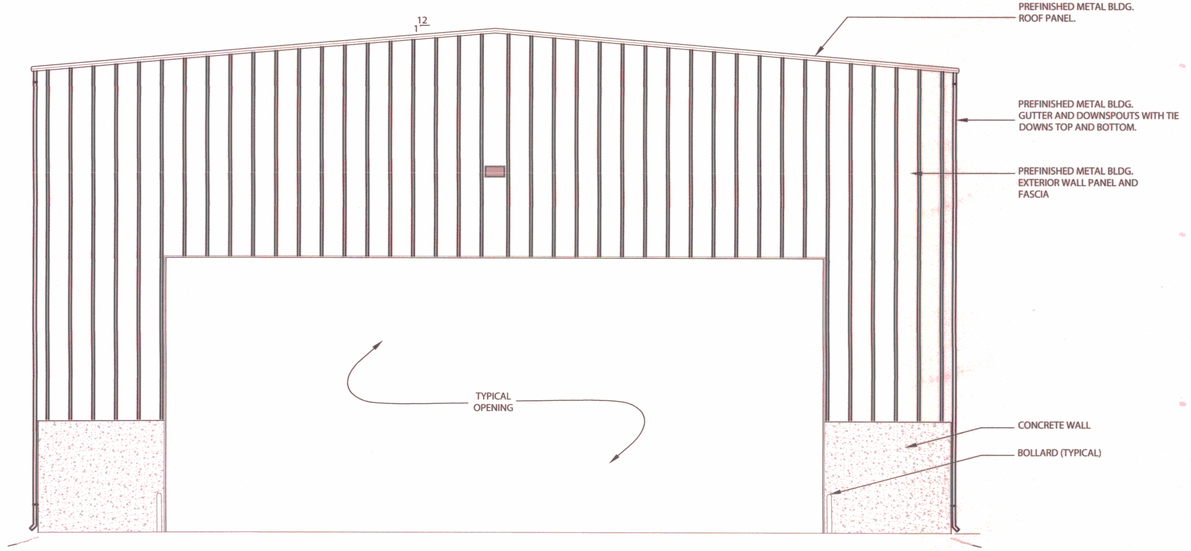
TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

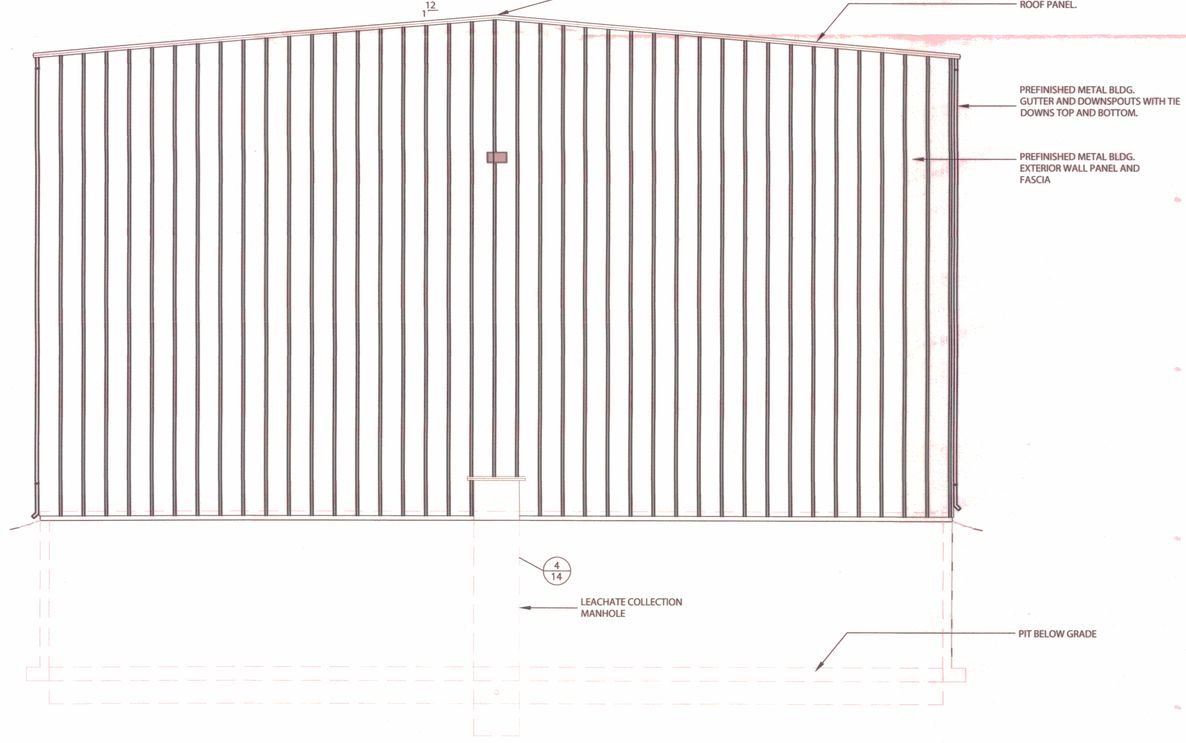
EXTERIOR VIEW OF BUILDING & TUNNEL

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20



EXTERIOR ELEVATION
(NTS)



EXTERIOR ELEVATION
(NTS)

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
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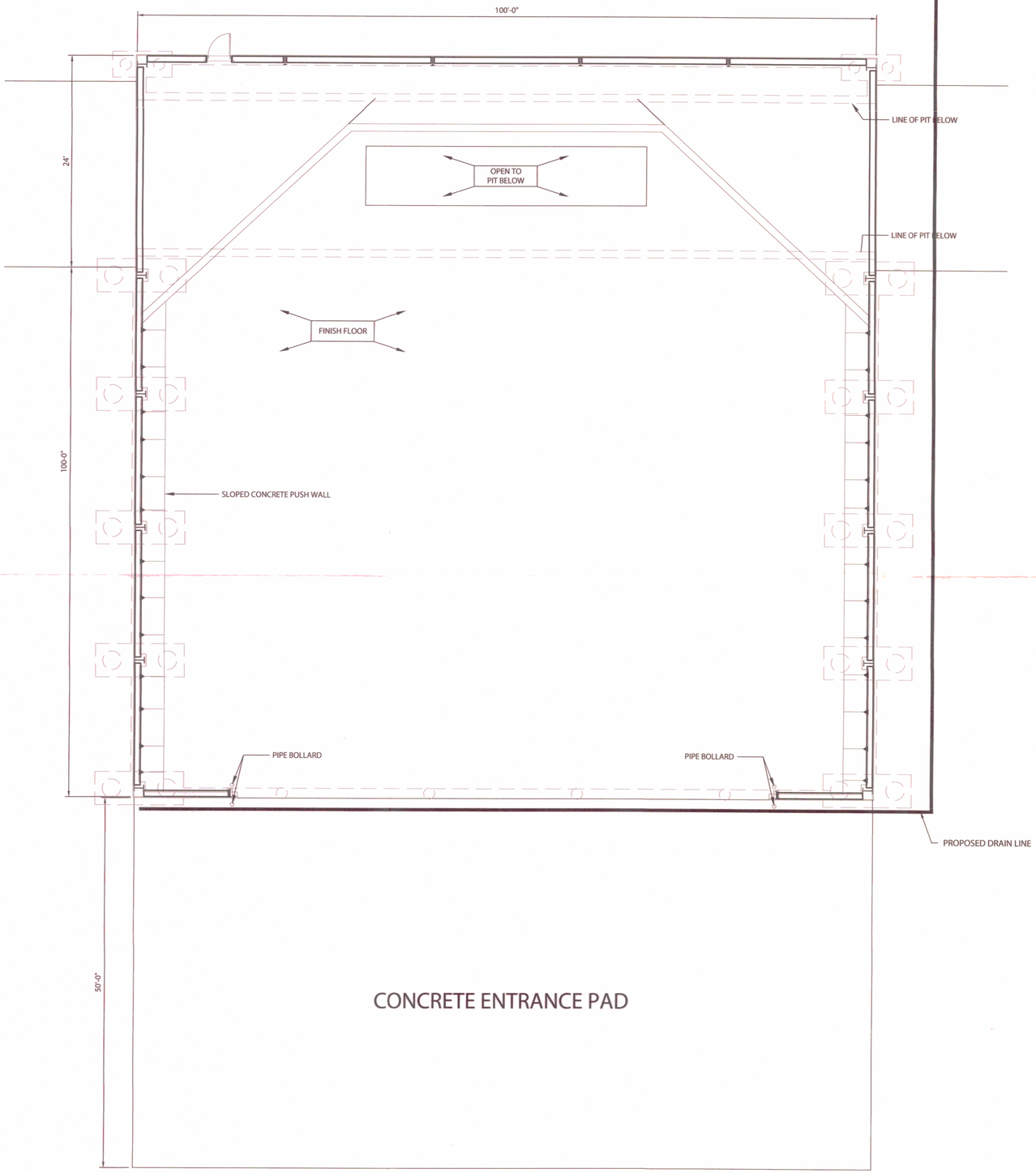
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

FRONT & REAR VIEWS OF BUILDING

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



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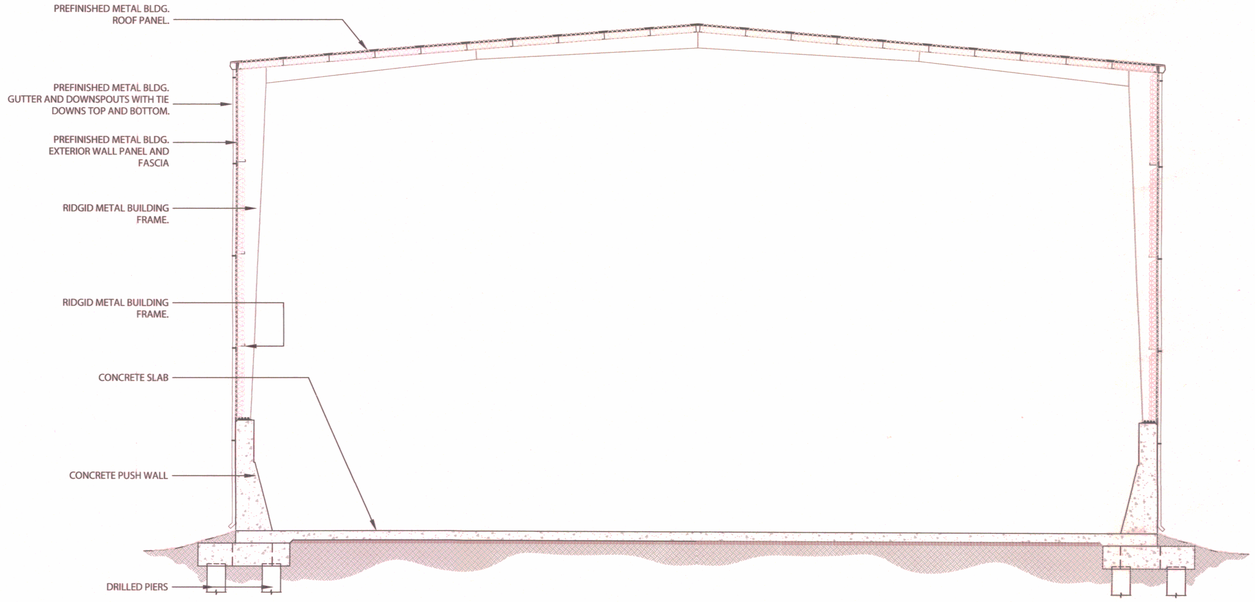
ADA, OKLAHOMA 74820

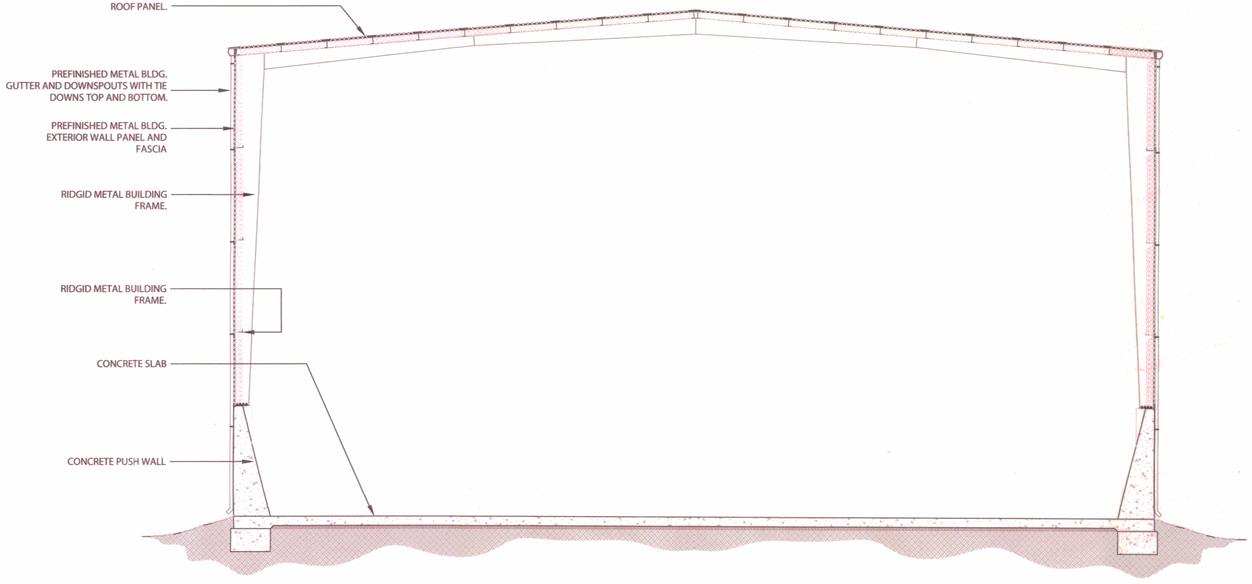
JEFF A. SHEPHERD
08/09/19
18259
REGISTERED PROFESSIONAL ENGINEER
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

TYPICAL FLOOR PLAN

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



BUILDING SECTION
(NTS)



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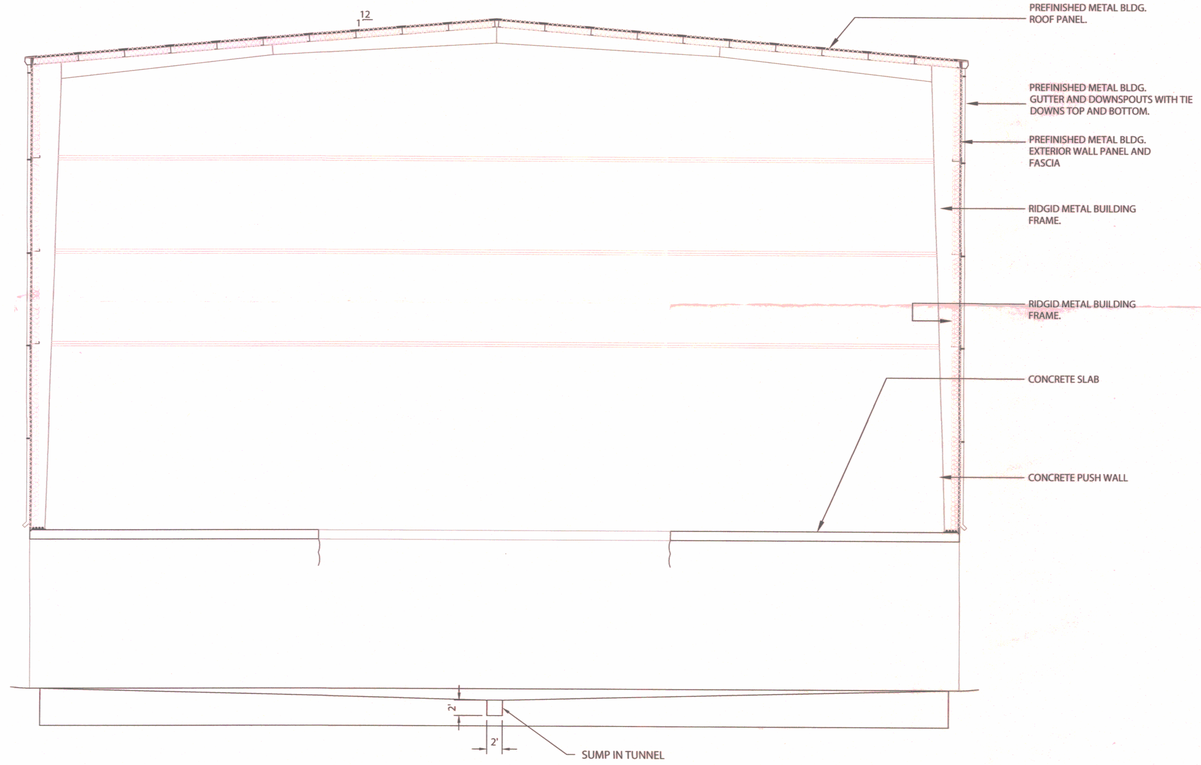
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

INTERIOR VIEWS OF BUILDING

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



BUILDING SECTION
(NTS)

REVISION	DESCRIPTION	DATE:

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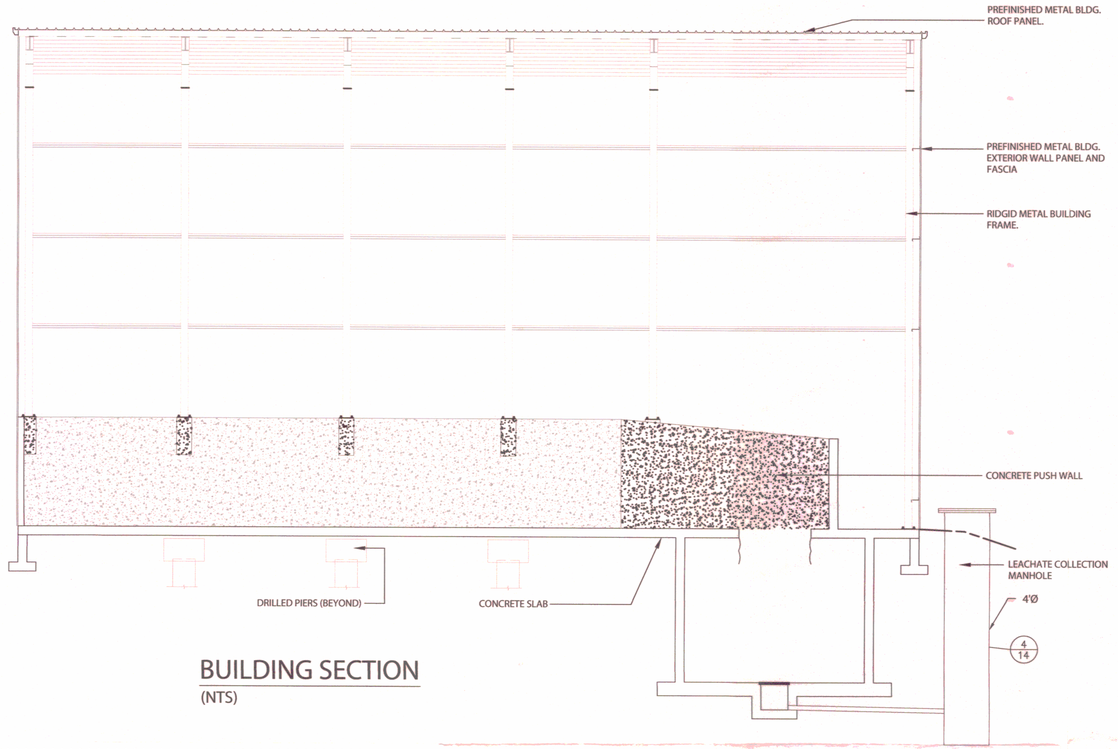
TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

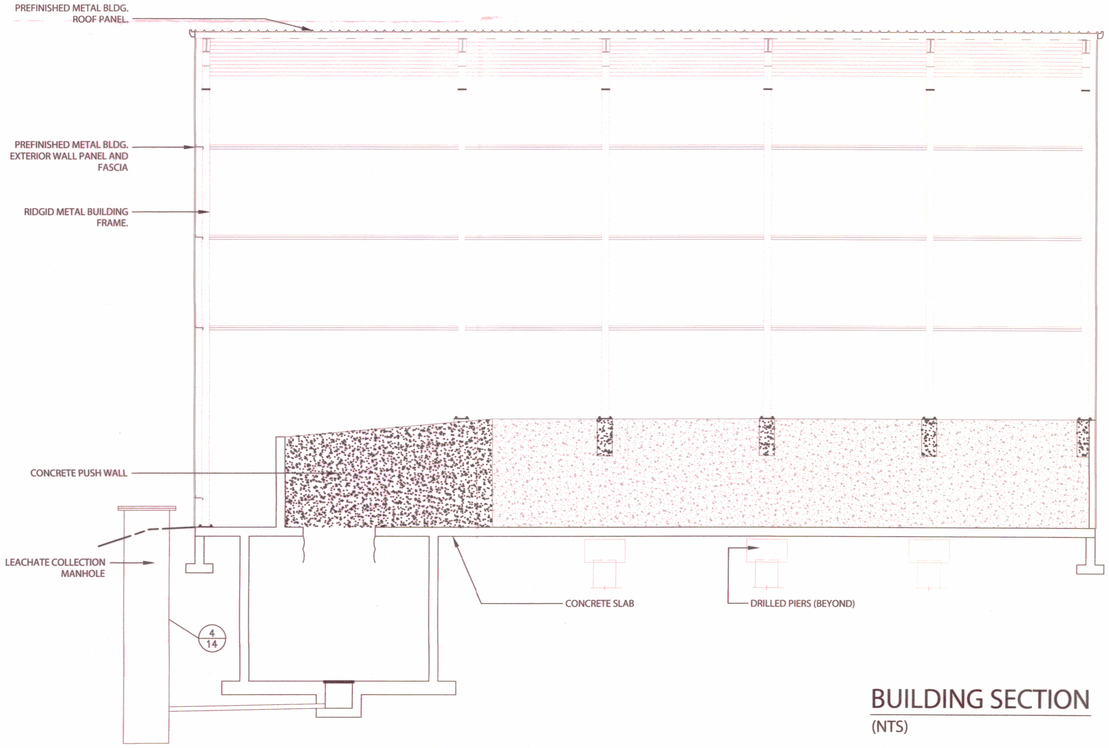
INTERIOR VIEW OF REAR OF BUILDING

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20



BUILDING SECTION
(NTS)



BUILDING SECTION
(NTS)

REVISION	DESCRIPTION	DATE:

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INTERIOR VIEWS OF BUILDING & TUNNEL

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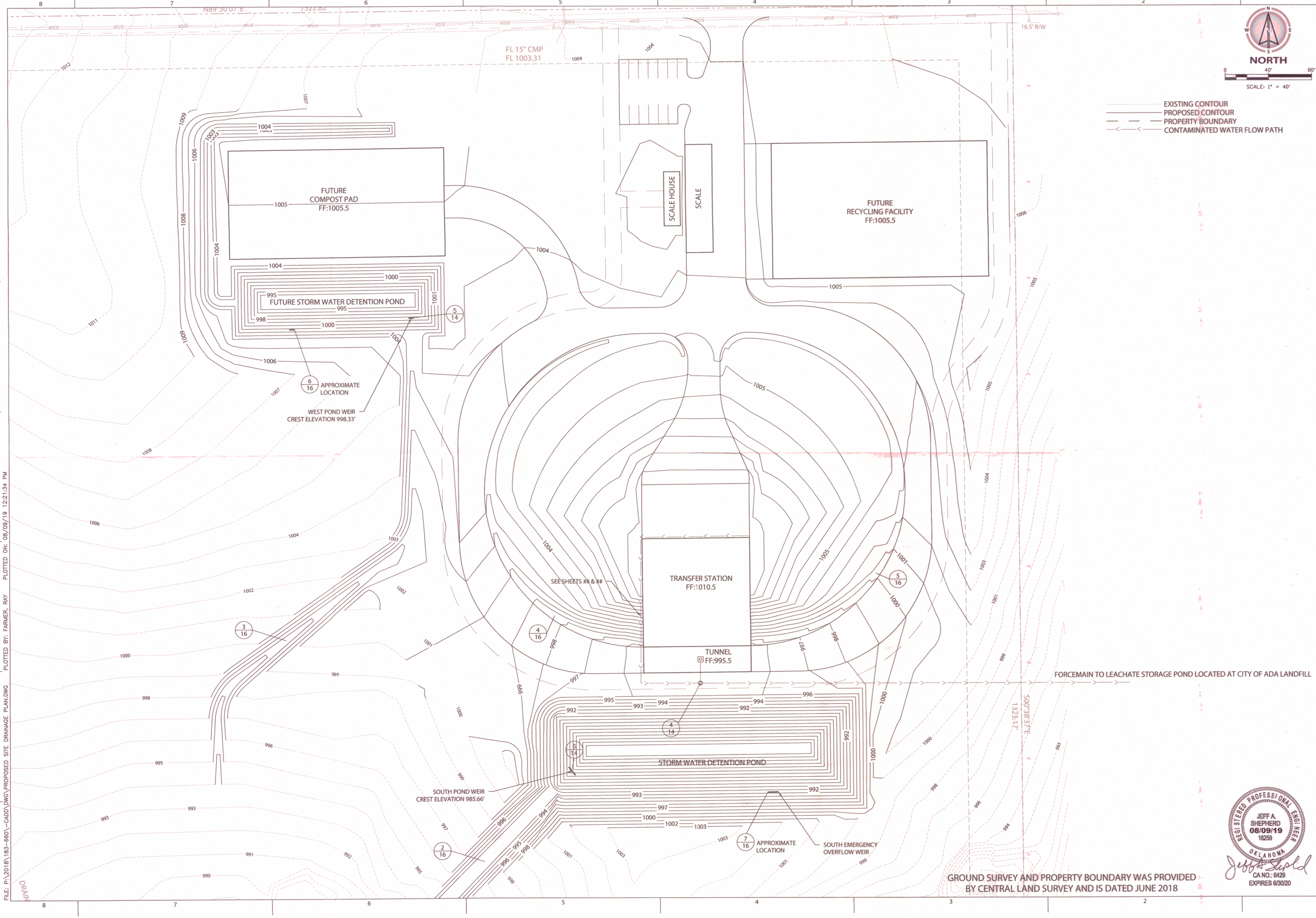
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20



GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

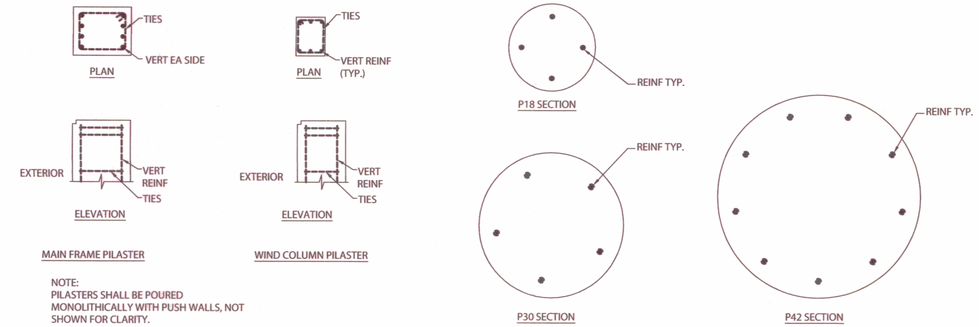
TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

PROPOSED DRAINAGE PLAN

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

FILE: P:\2018\183-660\--CADD\DWG\PROPOSED SITE DRAINAGE PLAN.DWG PLOTTED BY: FARMER, RAY PLOTTED ON: 08/09/19 12:21:34 PM

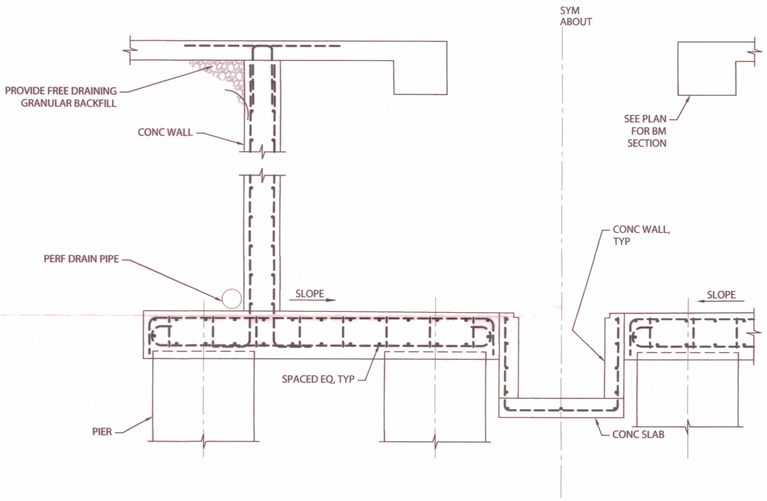


1/14 TYPICAL PILASTER DETAILS

SCALE: NTS

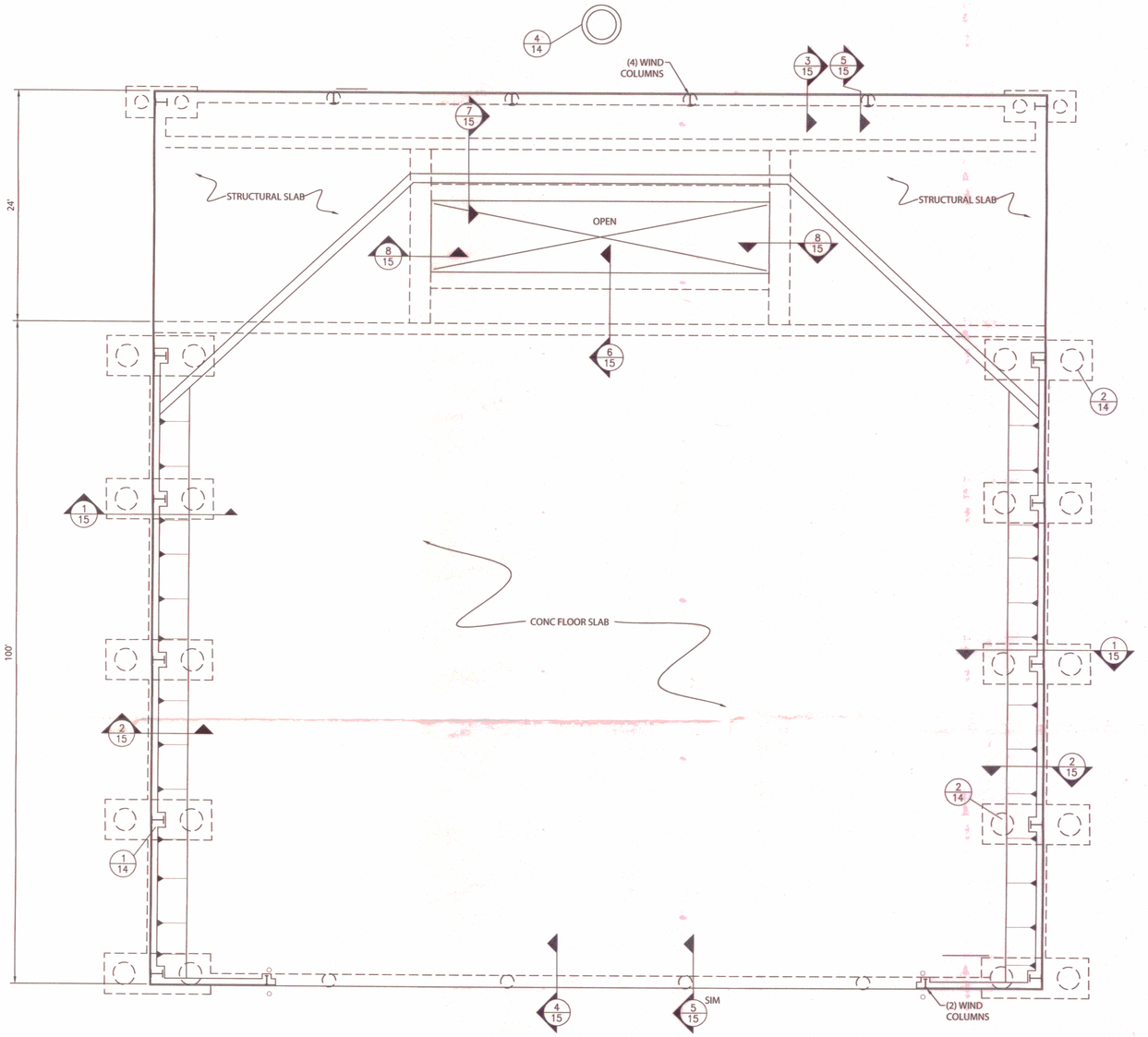
2/14 TYPICAL PIER DETAIL

SCALE: NTS



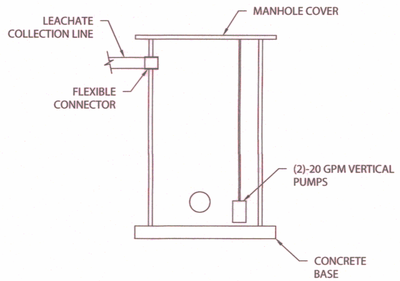
3/14 TYPICAL WALL SECTIONS

SCALE: NTS



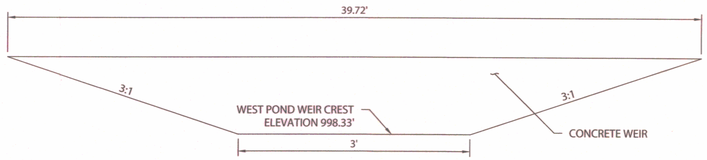
TYPICAL UPPER FOUNDATION PLAN

SCALE: NTS



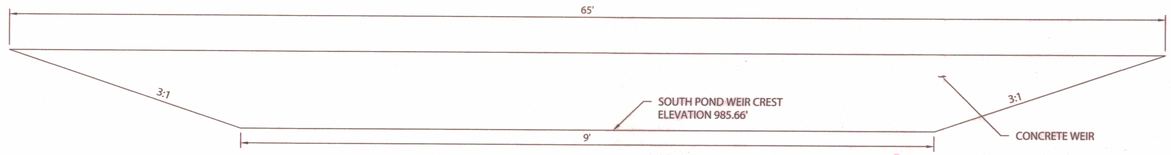
4/14 LEACHATE COLLECTION MANHOLE

SCALE: NTS



5/14 WEST CONCRETE POND WEIR

SCALE: NTS



6/14 SOUTH CONCRETE POND WEIR

SCALE: NTS

NORTH

JEFF A. SHEPHERD 08/09/19 18259 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CA NO.: 6429
EXPIRES 6/30/20

DATE:
DESCRIPTION
REVISION

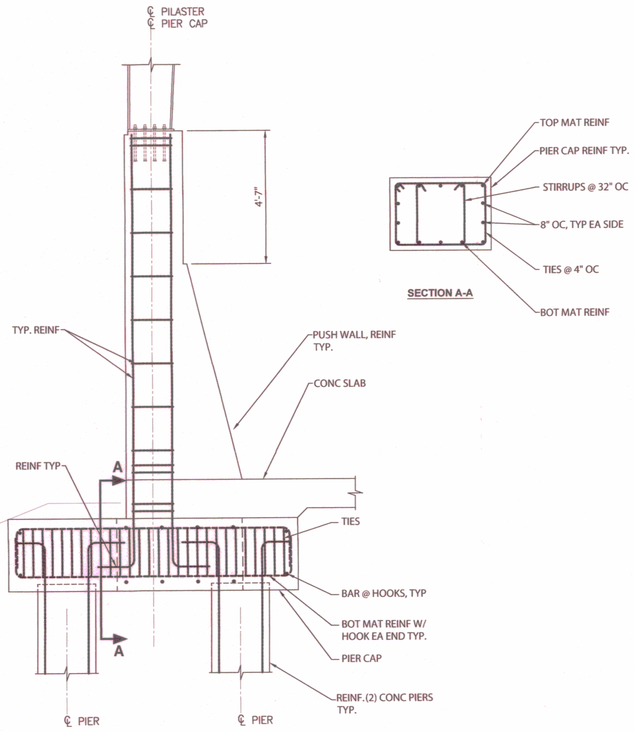
Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

PLAN & DETAILS

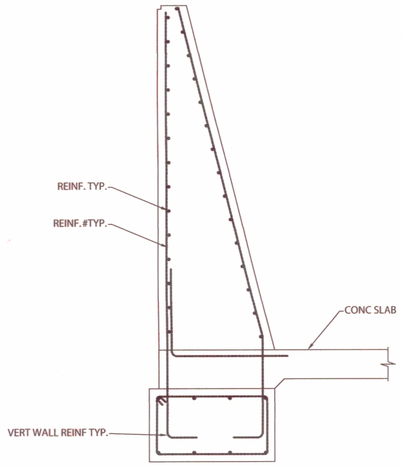
DATE: 08/09/19 | DRAWN BY: Ray Farmer
PROJECT NO: 183-660
APPROVED BY: Jeff Shepherd



SECTION A-A

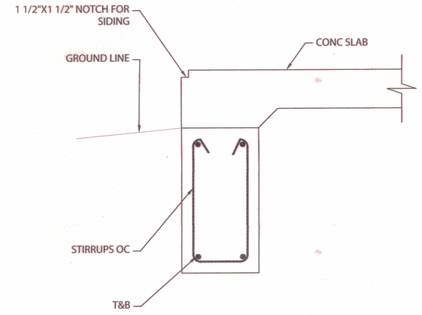
1/15 TYPICAL MAIN FRAME PIER SECTION

SCALE: 3/8" =1'-0"



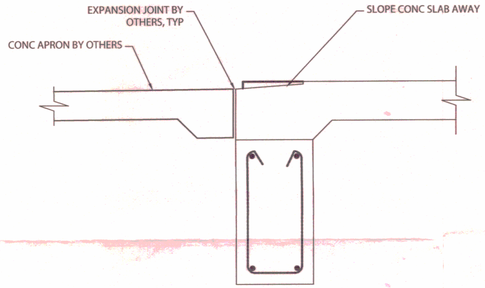
2/15 TYPICAL GRADE BEAM AND PUSH WALL SECTION

SCALE: 3/8" =1'-0"



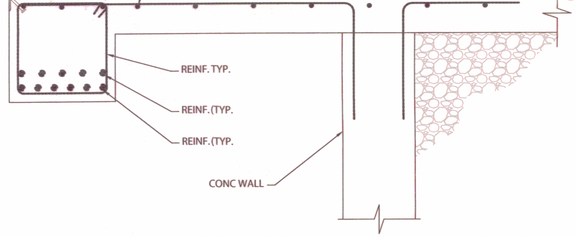
3/15 TYPICAL GRADE BEAM SECTION AT END WALLS

SCALE: 3/4" =1'-0"



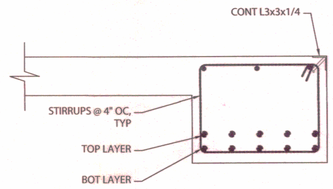
4/15 TYPICAL SLAB SECTION AT END WALLS

SCALE: 3/4" =1'-0"



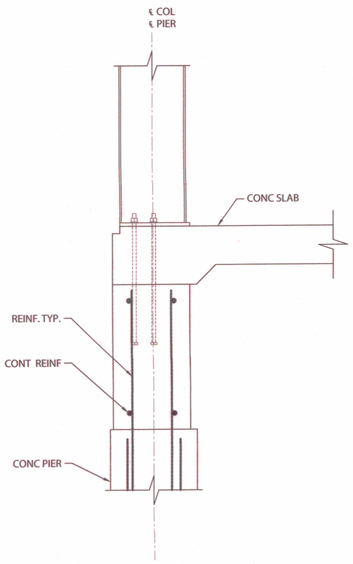
6/15 TYP. CONCRETE BEAM SECTION

SCALE: 3/4" =1'-0"



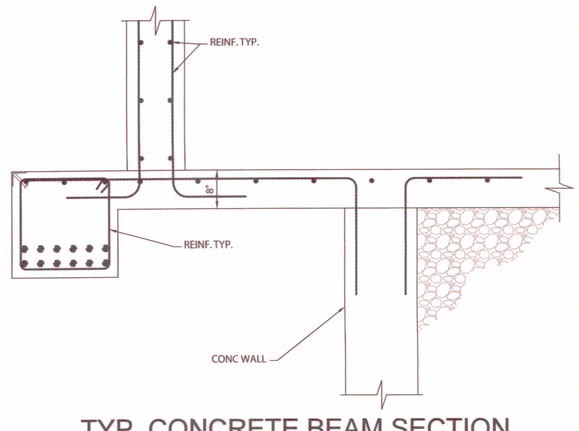
8/15 CONCRETE BEAM SECTION

SCALE: 3/4" =1'-0"



5/15 TYPICAL END WALL PIER SECTION

SCALE: 3/4" =1'-0"



7/15 TYP. CONCRETE BEAM SECTION

SCALE: 3/4" =1'-0"

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

REVISION	DESCRIPTION	DATE

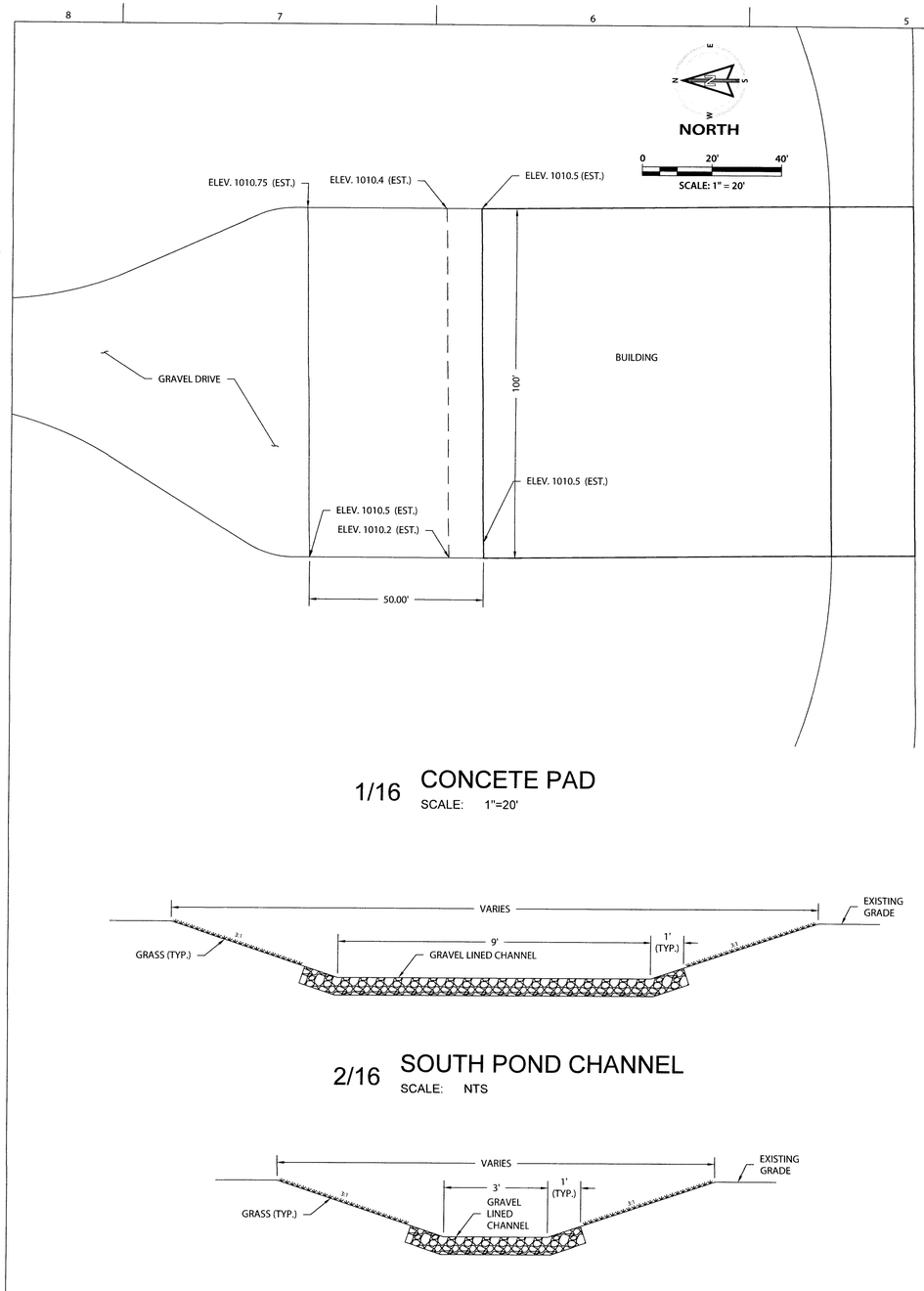
TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

TYPICAL DETAILS

DATE:	08/09/19
DRAWN BY:	Ray Farmer
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

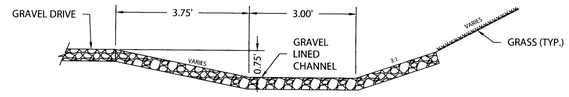
REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20



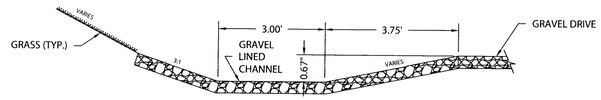
1/16 CONCETE PAD
SCALE: 1"=20'

2/16 SOUTH POND CHANNEL
SCALE: NTS

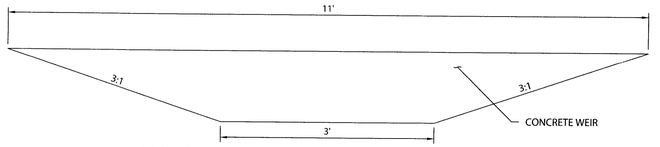
3/16 WEST POND CHANNEL
SCALE: NTS



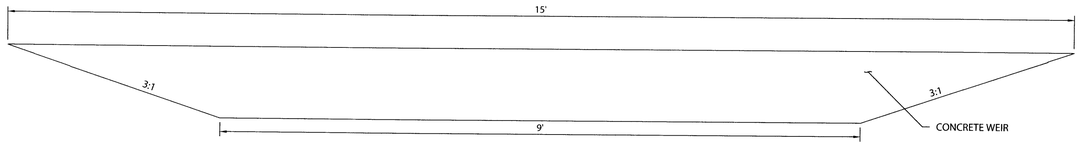
4/16 WEST DRIVE DITCH
SCALE: NTS



5/16 EAST DRIVE DITCH
SCALE: NTS



6/16 WEST EMERGENCY OVERFLOW POND WEIR
SCALE: NTS



7/16 SOUTH EMERGENCY OVERFLOW WEIR
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
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TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

SITE DETAILS

DATE: 08/09/19
DRAWN BY: Ray Farmer
PROJECT NO: 183-660
APPROVED BY: Jeff Shepherd

APPENDIX C

LOCATION RESTRICTION CORRESPONDENCE

November 28, 2018

By Registered Mail Return Receipt

Oklahoma Historical Society
800 Nazih Zudhi Drive
Oklahoma City, OK 73105

Attention: Ms. Catharine Wood
Section 106 Coordinator/Historical Archeologist

RE: Tier II Permit Application
Municipal Solid Waste Transfer Station
City of Ada
Ada, Pontotoc County, Oklahoma
CEC Project No.: 183-660

Dear Ms. Wood:

As required by Oklahoma Department of Environmental Quality (ODEQ) regulation 252:515-5-31, we would like to request a determination for a new Municipal Solid Waste Transfer Station (MSWTS). The proposed MSWTS is located in the North East Quarter (NE/4) of the North West Quarter (NW/4) of Section 24, Township 4 North, Range 5 East of the Indian Meridian (N 34° 48' 36.13" W 96° 43' 54.81"). See attached Figures 1 and 2 for the approximate location. The approximate size of the property is 40.2 acres.

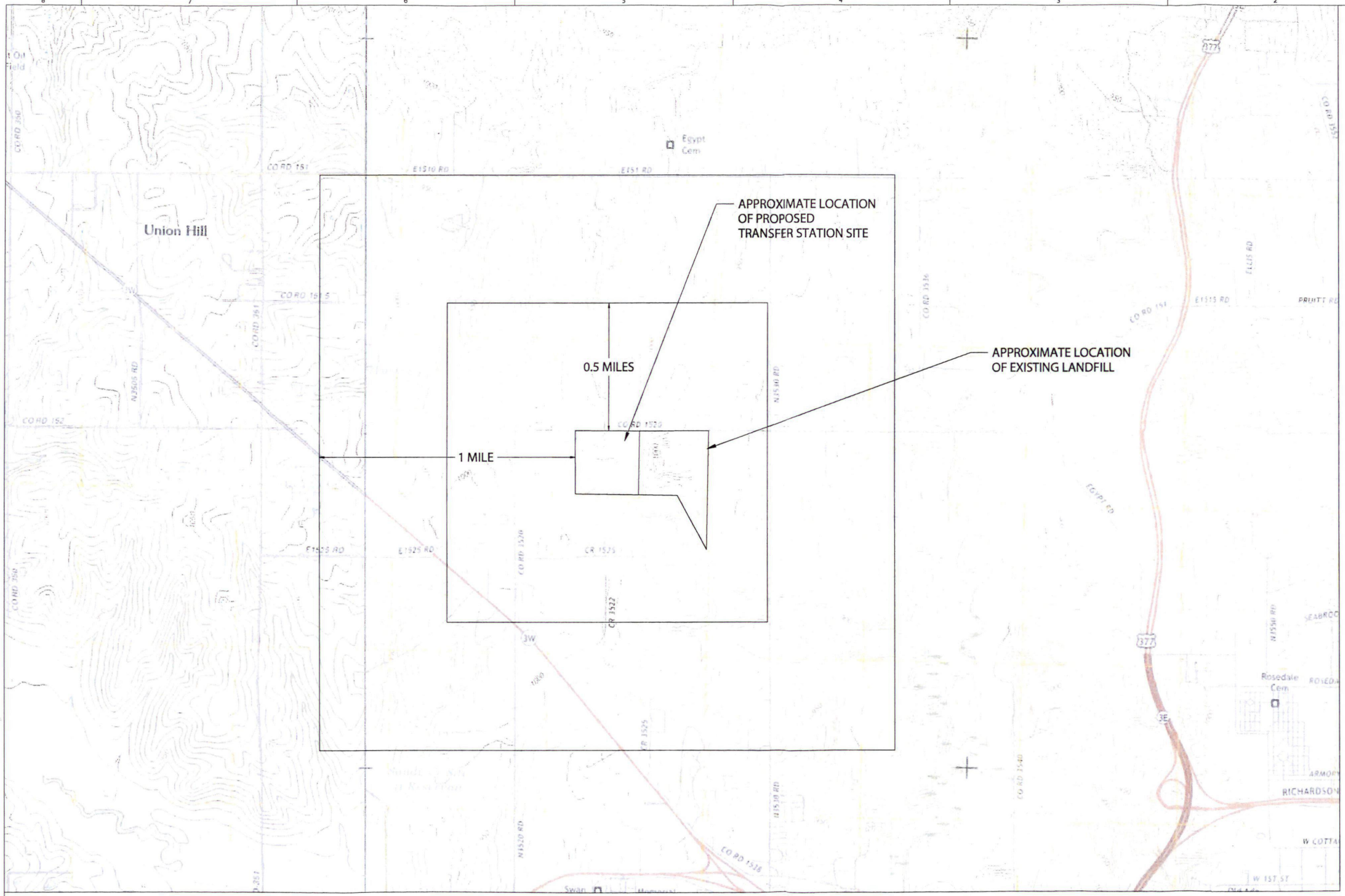
The ODEQ regulation states the following: *no area within the permit boundary of a new solid waste disposal facility shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.* Please review the attached drawing and provide this determination as required by the ODEQ.

If you have any questions or comments, or need additional information, please do not hesitate to contact the undersigned at (405) 463-7607.

Sincerely,
Civil and Environmental Consultants, Inc.

Jeff A. Shepherd

Jeff A. Shepherd, P.E.
Senior Engineer



EXCERPT FROM ADA, OKLAHOMA QUADRANGLE (2016),
U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

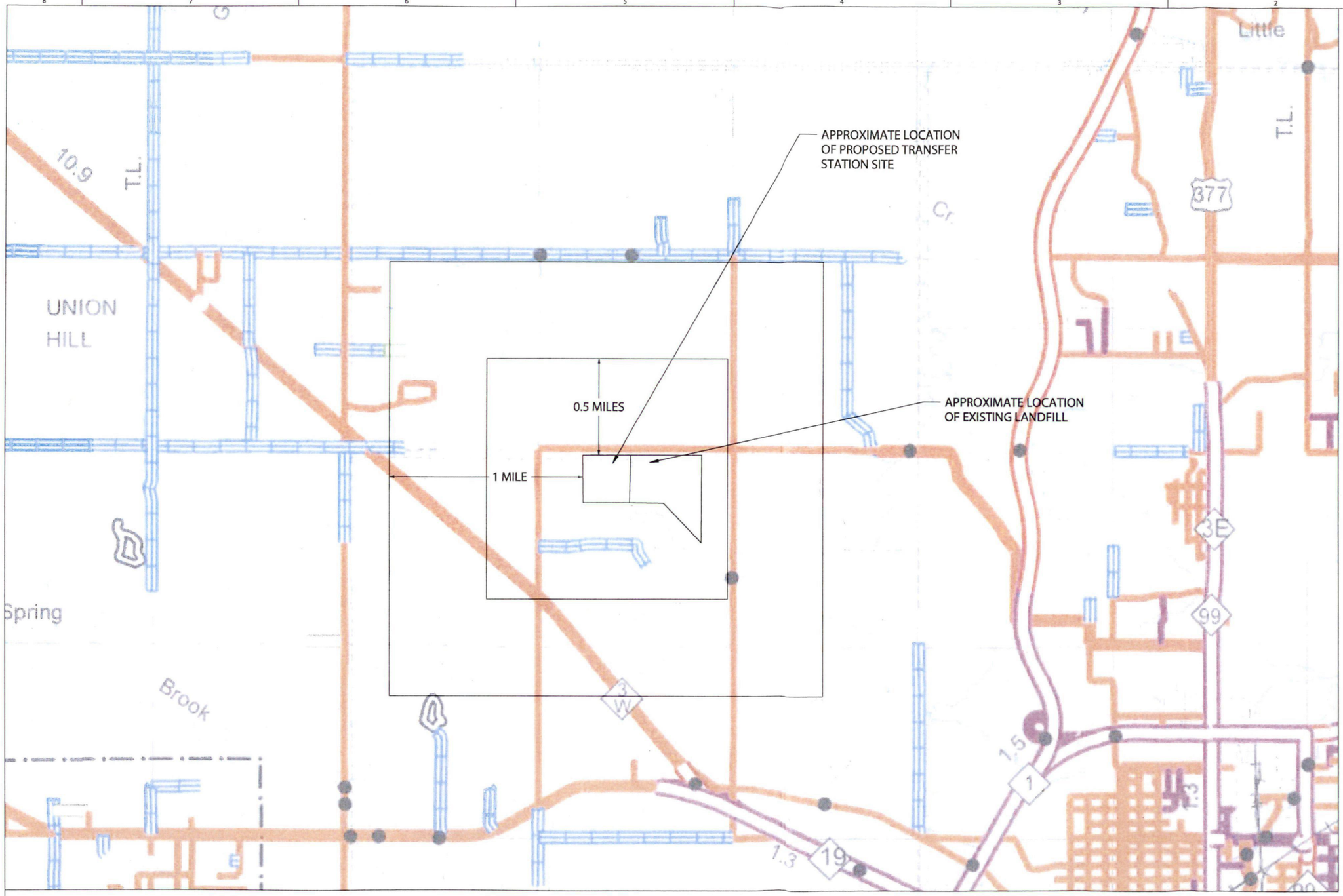
REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CITY OF ADA
USGS TOPOGRAPHIC MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/18
DRAWN BY:	Chris Harned
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



EXCERPT FROM PONTOTOC COUNTY GENERAL HIGHWAY MAP (2016), OKLAHOMA DEPARTMENT OF TRANSPORTATION, PLANNING DIVISION

NORTH

0 1/4 MILE 1/2 MILE

SCALE: 1" = 1/4 MILE

REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CITY OF ADA
GENERAL HIGHWAY MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/18
DRAWN BY:	Chris Hamed
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

Oklahoma Historical Society *Founded May 27, 1893*
State Historic Preservation Office
Oklahoma History Center • 800 Nazih Zuhdi Drive • Oklahoma City, OK 73105-7917
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

December 13, 2018

Mr. Jeff Shepherd
Civil & Environmental Consultants
4045 Northwest 64th, Suite 415
Oklahoma City, OK 73116

RE: File #0518-19; City of Ada Proposed New Municipal Solid Waste Transfer Station, CEC #183-660

Dear Mr. Shepherd:

We have received the documentation concerning the referenced project in Pomtotoc County. However, since the project pertains to programs handled through the Environmental Protection Agency (EPA) as lead federal agency, which provides funds to the Oklahoma Department of Environmental Quality (DEQ), and EPA has not delegated authority for your company to initiate Section 106 consultation with our office, your request must be submitted either through the Regional EPA Office or DEQ.

Requests for comments pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's (ACHP's) regulations (36 CFR Part 800) which implement the Section 106 process must be submitted on the letterhead of the responsible federal agency or their designee as appropriate.

While the majority of projects that we review do not involve effects on historic properties, it is extremely important that our formal communication on any federal undertaking be with the responsible entity, as only that entity can conclude the Section 106 process when a federally assisted project does effect historic properties (properties listed on or eligible for the National Register of Historic Places). You may find additional information about the Section 106 process on our website at www.okhistory.org/shpo/section106.htm or on the ACHP's website at www.achp.gov.

You might want to discuss this response with Ms. Kristi Roy, 405/702-8114, DEQ, to determine what you should do next. Also if you have any questions, please contact me at 405/522-4484. Please reference the above underlined file number when responding. Thank you.

Sincerely,

Lynda Ozan
Deputy State Historic
Preservation Officer

LO:pm

November 28, 2018

By Registered Mail Return Receipt

Oklahoma Department of Tourism
900 North Stiles
Oklahoma City, OK 73104

Attention: Mr. Dick Dutton
Executive Director

Re: Tier II Permit Application
Municipal Solid Waste Transfer Station
City of Ada
Ada, Pontotoc County, Oklahoma
CEC Project No.: 183-660

Dear Mr. Dutton:

As required by Oklahoma Department of Environmental Quality (ODEQ) regulation 252:515-5-31, we would like to request a determination for a new Municipal Solid Waste Transfer Station (MSWTS). The proposed MSWTS is located in the North East Quarter (NE/4) of the North West Quarter (NW/4) of Section 124, Township 4 North, Range 5 East of the Indian Meridian (N 34° 48' 36.13" W 96° 43' 54.81"). See attached Figures 1 and 2 for the approximate location. The approximate size of the property is 40.2 acres.

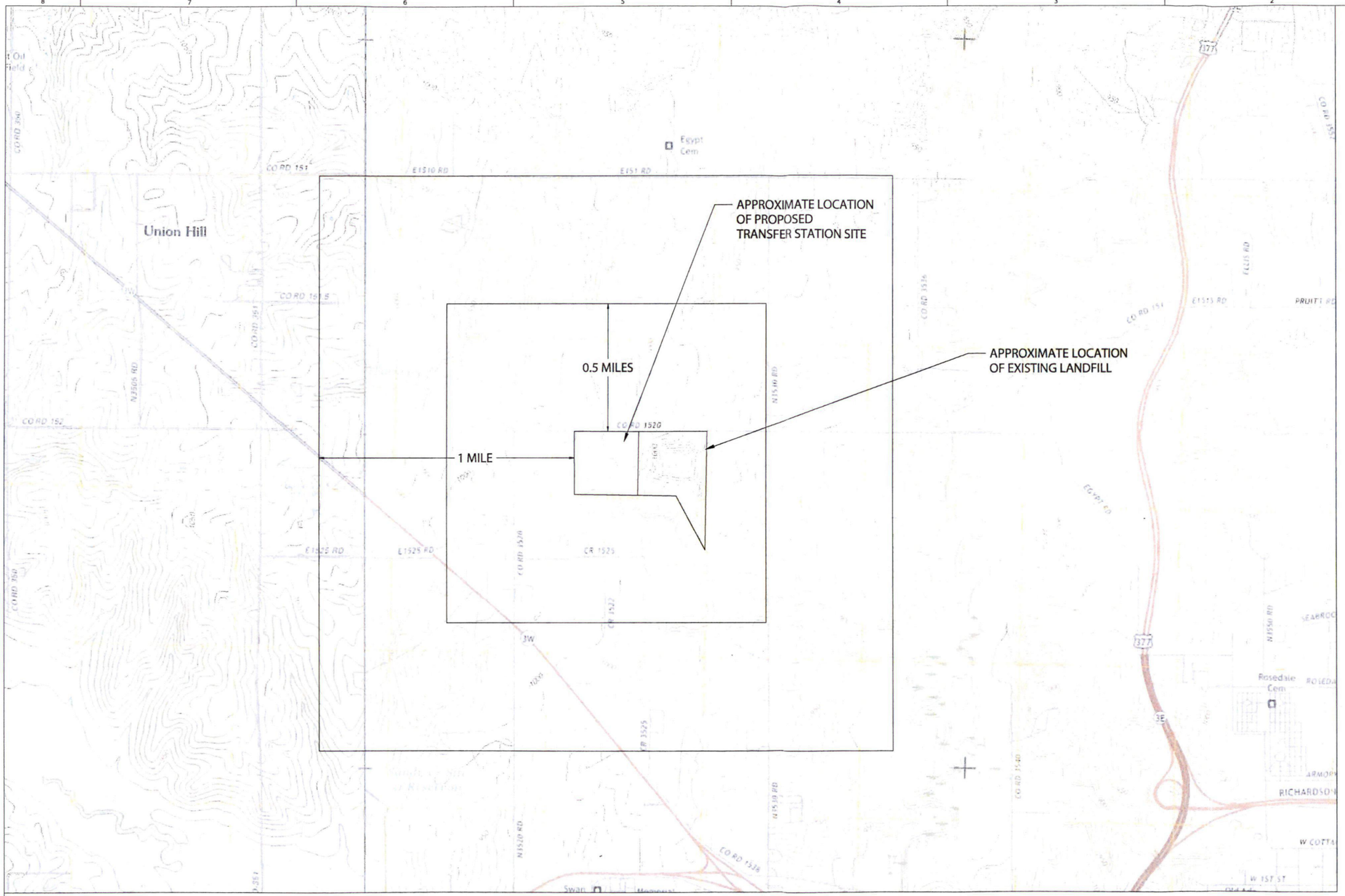
The ODEQ regulation states the following: *no area within the permit boundary of a new solid waste disposal facility shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.* Please review the attached drawing and provide this determination as required by the ODEQ.

If you have any questions or comments, or need additional information, please do not hesitate to contact the undersigned at (405) 463-7607. Thank you very much for your time and effort in this matter.

Sincerely,
Civil and Environmental Consultants, Inc.

Jeff A. Shepherd

Jeff A. Shepherd, P.E.
Senior Engineer



EXCERPT FROM ADA, OKLAHOMA QUADRANGLE (2016),
U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

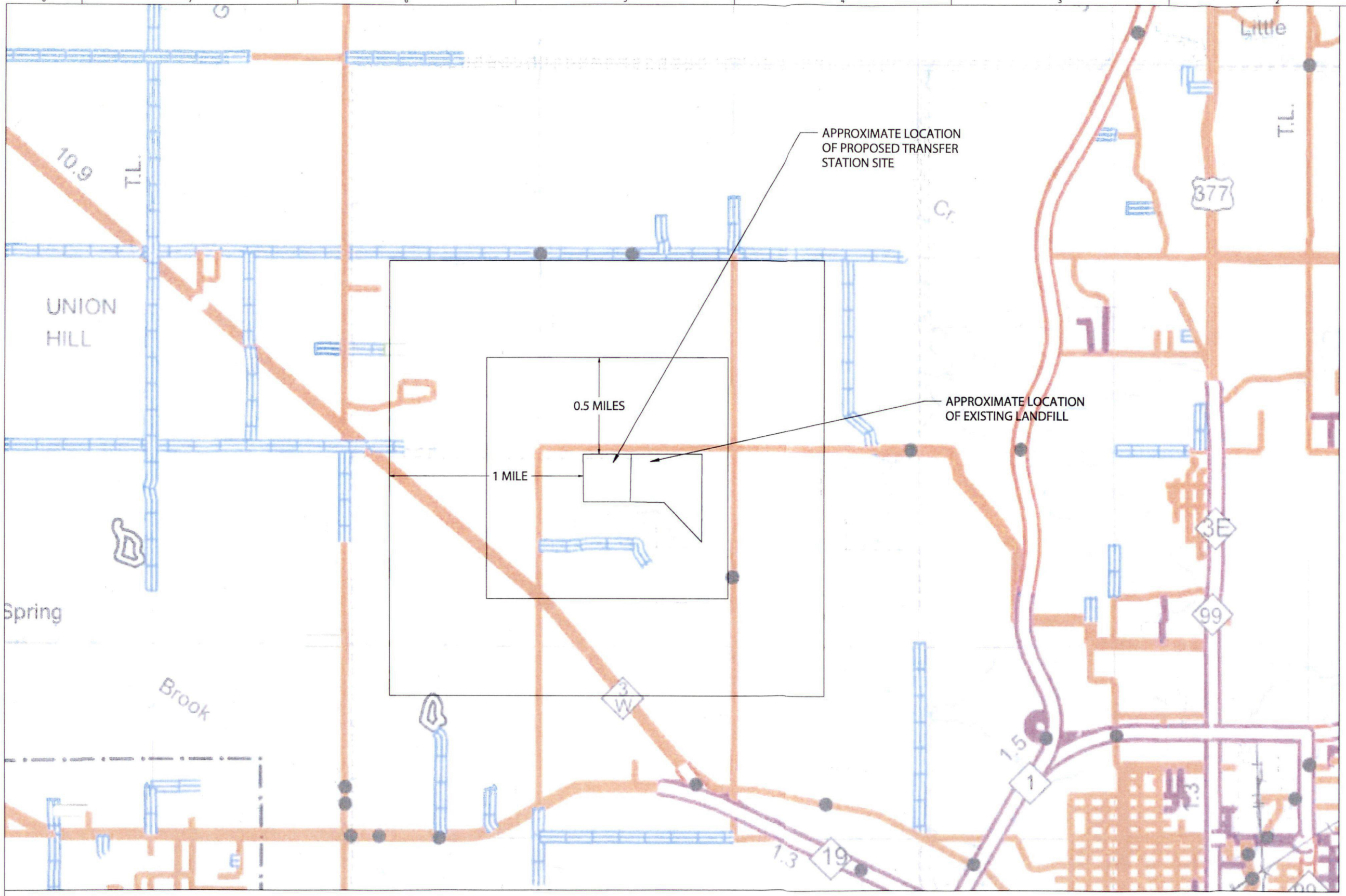
REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CITY OF ADA
USGS TOPOGRAPHIC MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/18
DRAWN BY:	Chris Harned
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



EXCERPT FROM PONTOTOC COUNTY GENERAL HIGHWAY MAP (2016), OKLAHOMA DEPARTMENT OF TRANSPORTATION, PLANNING DIVISION

NORTH

0 1/4 MILE 1/2 MILE

SCALE: 1" = 1/4 MILE

REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
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CITY OF ADA
GENERAL HIGHWAY MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/19
DRAWN BY:	Chris Hamed
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

Shepherd, Jeff

From: Eve Atkinson <Eve.Atkinson@travelok.com>
Sent: Wednesday, January 2, 2019 11:26 AM
To: Shepherd, Jeff
Cc: Susan Henry
Subject: Tier II Permit Application Municipal Solid Waste Transfer Station Ada CEC Project No.:183-660

Thank you for your letter and a chance to respond to the proposed new Municipal Solid Waste Transfer Station in Pontotoc Co. According to the location information you sent and our files, There is no recreation area, state park, or municipal park funded with federal money from the Land and Water Conservation Fund program in this area.

Eve L. Atkinson, Planner II
Grants Office
Oklahoma State Parks
Oklahoma Tourism and Recreation Department
900 North Stiles
Oklahoma City, OK 73104-3234

405.522.9516.
Eve.Atkinson@travelok.com

November 28, 2018

By Registered Mail Return Receipt

GRDA - Oklahoma Scenic Rivers Commission
P.O. Box 292
Tahlequah, OK 74465-0292

Attention: Mr. Edward H. Fite, III
Administrator

Re: Tier II Permit Application
Municipal Solid Waste Transfer Station
City of Ada
Ada, Pontotoc County, Oklahoma
CEC Project No.: 183-660

Dear Mr. Fite:

As required by Oklahoma Department of Environmental Quality (ODEQ) regulation 252:515-5-31, we would like to request a determination for a new Municipal Solid Waste Transfer Station (MSWTS). The proposed MSWTS is located in the North East Quarter (NE/4) of the North West Quarter (NW/4) of Section 24, Township 4 North, Range 5 East of the Indian Meridian (N 34° 48' 36.13" W 96° 43' 54.81"). See attached Figures 1 and 2 for the approximate location. The approximate size of the property is 40.2 acres.

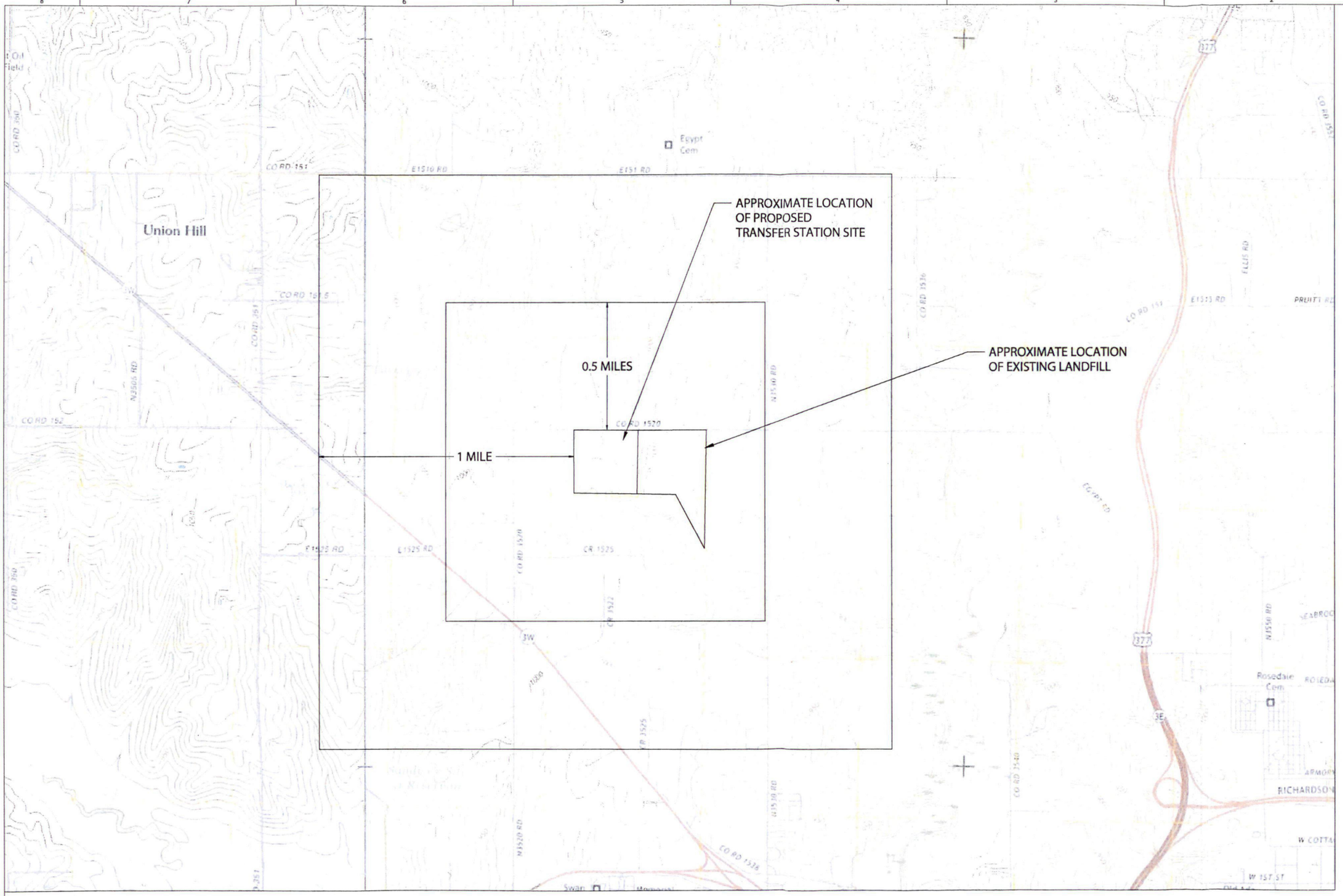
The ODEQ regulation states the following: *no area within the permit boundary of a new solid waste disposal facility shall be located within the drainage basin of any river designated under the Oklahoma Scenic Rivers Commission Act.* Please review the attached drawing and provide this determination as required by the ODEQ.

If you have any questions or comments, or need additional information, please do not hesitate to contact the undersigned at (405) 463-7607. Thank you very much for your time and effort in this matter.

Sincerely,
Civil and Environmental Consultants, Inc.

Jeff A. Shepherd

Jeff A. Shepherd, P.E.
Senior Engineer



NORTH

0 1000' 2000'

SCALE: 1" = 1000'

EXCERPT FROM ADA, OKLAHOMA QUADRANGLE (2016),
U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

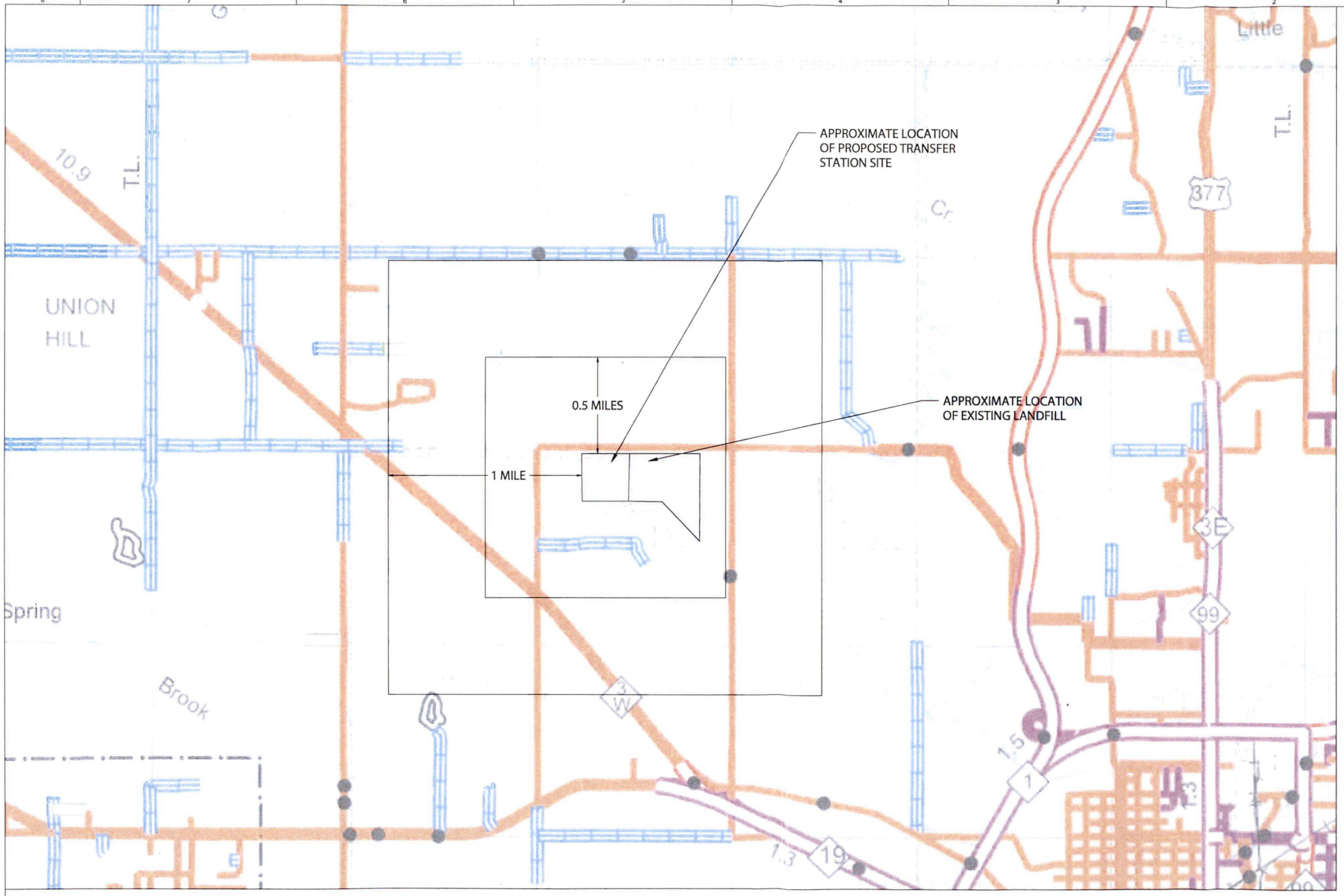
REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CITY OF ADA
USGS TOPOGRAPHIC MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/19
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd
DRAWN BY:	Chris Harned



EXCERPT FROM PONTOTOC COUNTY GENERAL HIGHWAY MAP (2016), OKLAHOMA DEPARTMENT OF TRANSPORTATION, PLANNING DIVISION

REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
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CA #6429, Exp. 06/30/20

CITY OF ADA
GENERAL HIGHWAY MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/18
DRAWN BY:	Chris Harned
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

Civil & Environmental Consultants, Inc.

November 28, 2018

By Registered Mail Return Receipt

GRDA - Oklahoma Scenic Rivers Commission
P.O. Box 292
Tahlequah, OK 74465-0292

Attention: Mr. Edward H. Fite, III
Administrator

Re: Tier II Permit Application
Municipal Solid Waste Transfer Station
City of Ada
Ada, Pontotoc County, Oklahoma
CEC Project No.: 183-660

Dear Mr. Fite:

As required by Oklahoma Department of Environmental Quality (ODEQ) regulation 252:515-5-31, we would like to request a determination for a new Municipal Solid Waste Transfer Station (MSWTS). The proposed MSWTS is located in the North East Quarter (NE/4) of the North West Quarter (NW/4) of Section 24, Township 4 North, Range 5 East of the Indian Meridian (N 34° 48' 36.13" W 96° 43' 54.81"). See attached Figures 1 and 2 for the approximate location. The approximate size of the property is 40.2 acres.

The ODEQ regulation states the following: *no area within the permit boundary of a new solid waste disposal facility shall be located within the drainage basin of any river designated under the Oklahoma Scenic Rivers Commission Act.* Please review the attached drawing and provide this determination as required by the ODEQ.

If you have any questions or comments, or need additional information, please do not hesitate to contact the undersigned at (405) 463-7607. Thank you very much for your time and effort in this matter.

Sincerely,
Civil and Environmental Consultants, Inc.

Jeff A. Shepherd

Jeff A. Shepherd, P.E.
Senior Engineer

Grand River Dam Authority - Scenic Rivers Operations has no comments on this project(s).

Director 12/13/2018 Date

November 28, 2018

By Registered Mail Return Receipt

Oklahoma Conservation Commission
2800 North Lincoln Blvd.
Suite 200
Oklahoma City, OK 73105

Attention: Mr. Trey Lam
Executive Director

Re: Tier II Permit Application
Municipal Solid Waste Transfer Station
City of Ada
Ada, Pontotoc County, Oklahoma
CEC Project No.: 183-660

Dear Mr. Lam:

As required by Oklahoma Department of Environmental Quality (ODEQ) regulation 252:515-5-31, we would like to request a determination for a new Municipal Solid Waste Transfer Station (MSWTS). The proposed MSWTS is located in the North East Quarter (NE/4) of the North West Quarter (NW/4) of Section 24, Township 4 North, Range 5 East of the Indian Meridian (N 34° 48' 36.13" W 96° 43' 54.81"). See attached Figures 1 and 2 for the approximate location. The approximate size of the property is 40.2 acres.

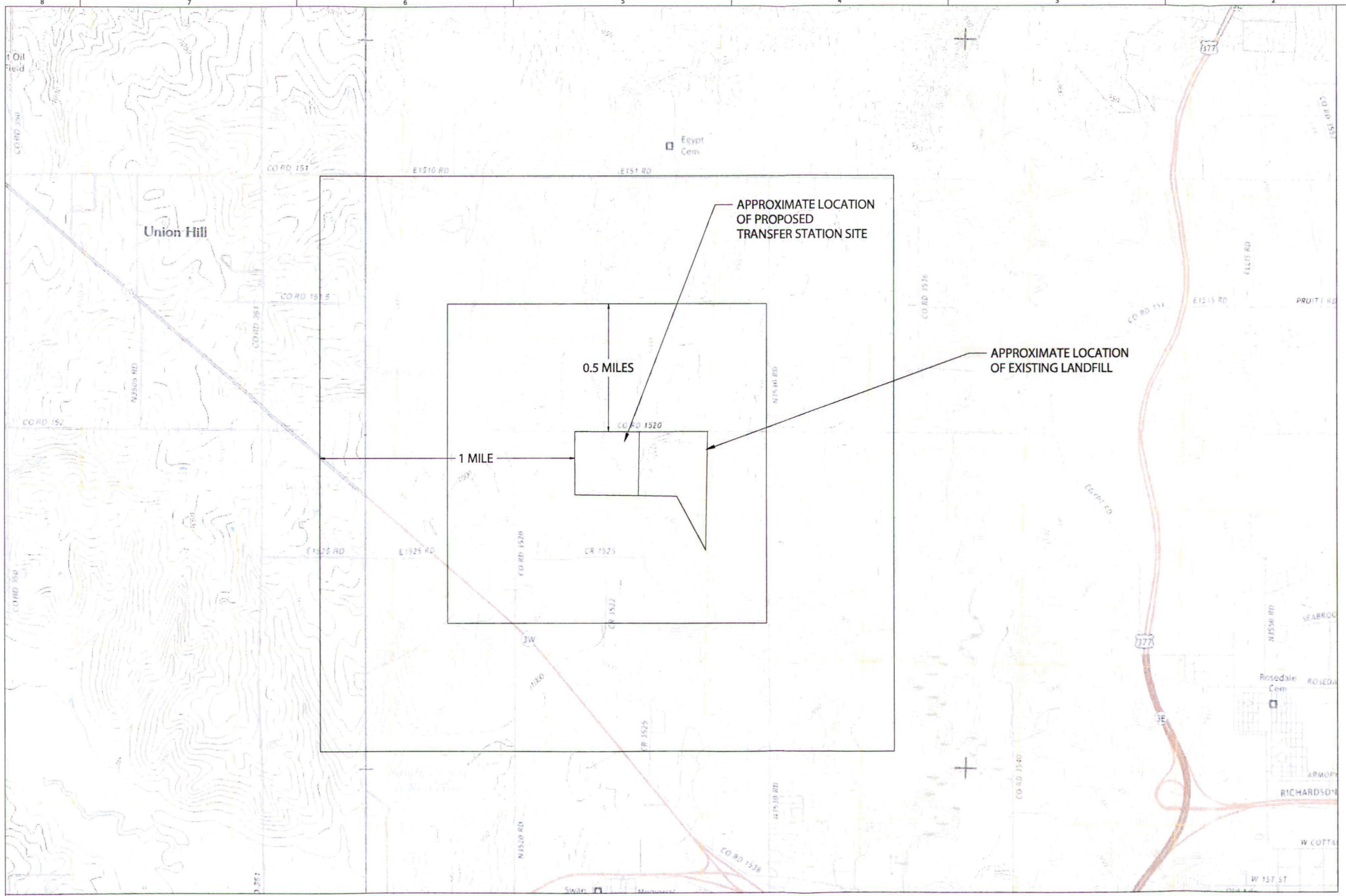
The ODEQ regulation states the following: *no new waste management or disposal areas of a solid waste disposal facility shall be located in wetland areas as designated by the Oklahoma Conservation Commission.* Please review the attached drawings and provide this determination as required by the ODEQ.

If you have any questions or comments, or need additional information, please do not hesitate to contact the undersigned at (405) 463-7607.

Sincerely,
Civil and Environmental Consultants, Inc.

Jeff A. Shepherd

Jeff A. Shepherd, P.E.
Senior Engineer



EXCERPT FROM ADA, OKLAHOMA QUADRANGLE (2016),
U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

NORTH
0 1000' 2000'
SCALE: 1" = 1000'

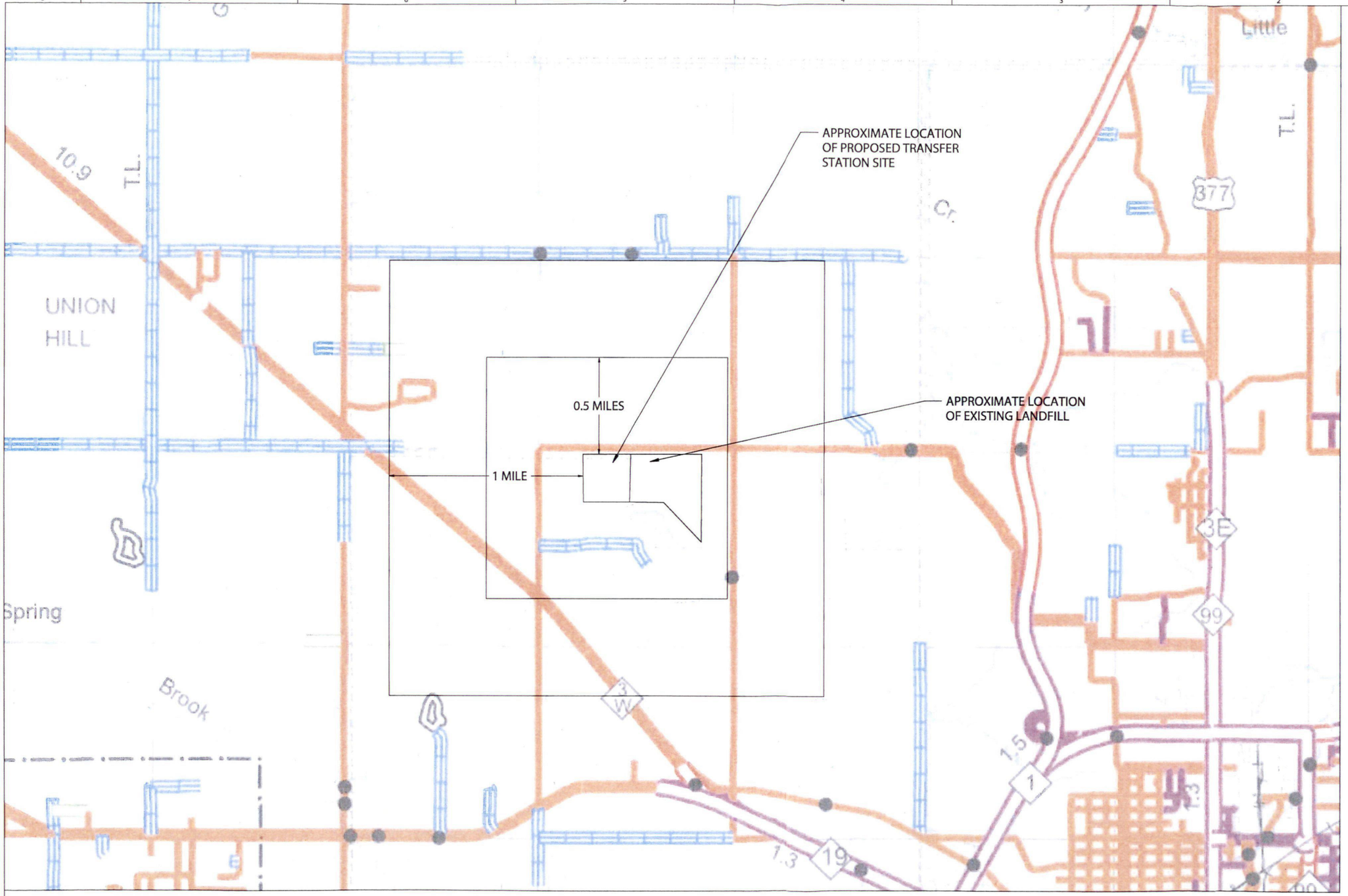
REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CITY OF ADA
USGS TOPOGRAPHIC MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/18
DRAWN BY:	Chris Hamed
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd



NORTH

0 1/4 MILE 1/2 MILE

SCALE: 1" = 1/4 MILE

REVISION	DESCRIPTION	DATE

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

CITY OF ADA
GENERAL HIGHWAY MAP
PROPOSED CITY OF ADA TRANSFER STATION
ADA, PONTOTOC COUNTY, OKLAHOMA

APPROXIMATE LOCATION OF PROPOSED TRANSFER STATION

DATE:	08/27/18
DRAWN BY:	Chris Harned
PROJECT NO:	183-660
APPROVED BY:	Jeff Shepherd

EXCERPT FROM PONTOTOC COUNTY GENERAL HIGHWAY MAP (2016), OKLAHOMA DEPARTMENT OF TRANSPORTATION, PLANNING DIVISION

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
2488 EAST 81ST STREET
TULSA, OKLAHOMA 74137-4290

December 21, 2018

RECEIVED
JAN 04 2019

Regulatory Office

Mr. Jeff Shepherd, P.E.
Civil and Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415
Oklahoma City, OK 73116

Dear Mr. Shepherd:

Please reference your correspondence, dated November 28, 2018, regarding the proposed construction of a Municipal Solid Waste Transfer Station in Section 24, Township 4 North, Range 5 East, Pontotoc County, Oklahoma.

If the proposed work would result in the discharge of any dredged or fill material into wetlands or other waters, such as Canadian Sandy Creek, its tributaries, or adjacent wetlands, please resubmit that portion of the project so that we may determine the appropriate permitting action under Section 404 of the Clean Water Act. To facilitate this determination, please provide a delineation of wetlands and other waters encompassing the footprint of the proposed project.

Wetland delineations must be prepared in accordance with the *1987 Wetland Delineation Manual* and the appropriate regional supplement. Information concerning wetland delineations and data forms can be found at the following internet address:

https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/reg_supp/.

This project has been assigned Identification Number SWT-2018-00678. Please reference this number during any future correspondence with this office. If you have any questions, please contact Mr. David Carraway at 918-669-7618.

Sincerely,

Andrew R. Commer
Chief, Regulatory Office

OKLAHOMA CONSERVATION COMMISSION

Our Land • Our Heritage • Our Future

December 12, 2018

RECEIVED

DEC 18 2018

Jeff A. Shepherd
Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Ste 415
Oklahoma City, OK 73116

RE: Tier II Permit Application, Municipal Solid Waste Transfer Station, City of Ada, Ada, Pontotoc Co. Oklahoma. CEC Project No.: 183-660.

Dear Mr. Shepherd:

Your request for a wetland determination for the referenced project, as described in your letter of November 28, 2018 has been reviewed using the National Wetlands Inventory and Soil Survey of Pontotoc County. Hydric soils are not indicated on the soil survey map, however an area classified as Freshwater Forested/Shrub Wetland (PFO1A) was identified at the site. Due to the potential impact on wetland resources, an on-site investigation may be needed. Consequently, your request has been referred to the U.S. Army Corps of Engineers for a determination. Their address and phone number is:

U.S. Army Corps of Engineers
Mr. Andrew Commer
Chief of Regulatory Branch
2488 E. 81st Street
Tulsa, OK 74137-4290
918/669-7400

If you have any further questions or concerns, please contact me at 405/534-6997.

Sincerely,

For Brooks Tramell
Wetlands Program Coordinator
Water Quality Division

cc: U.S. Army Corps of Engineers
Wetlands File

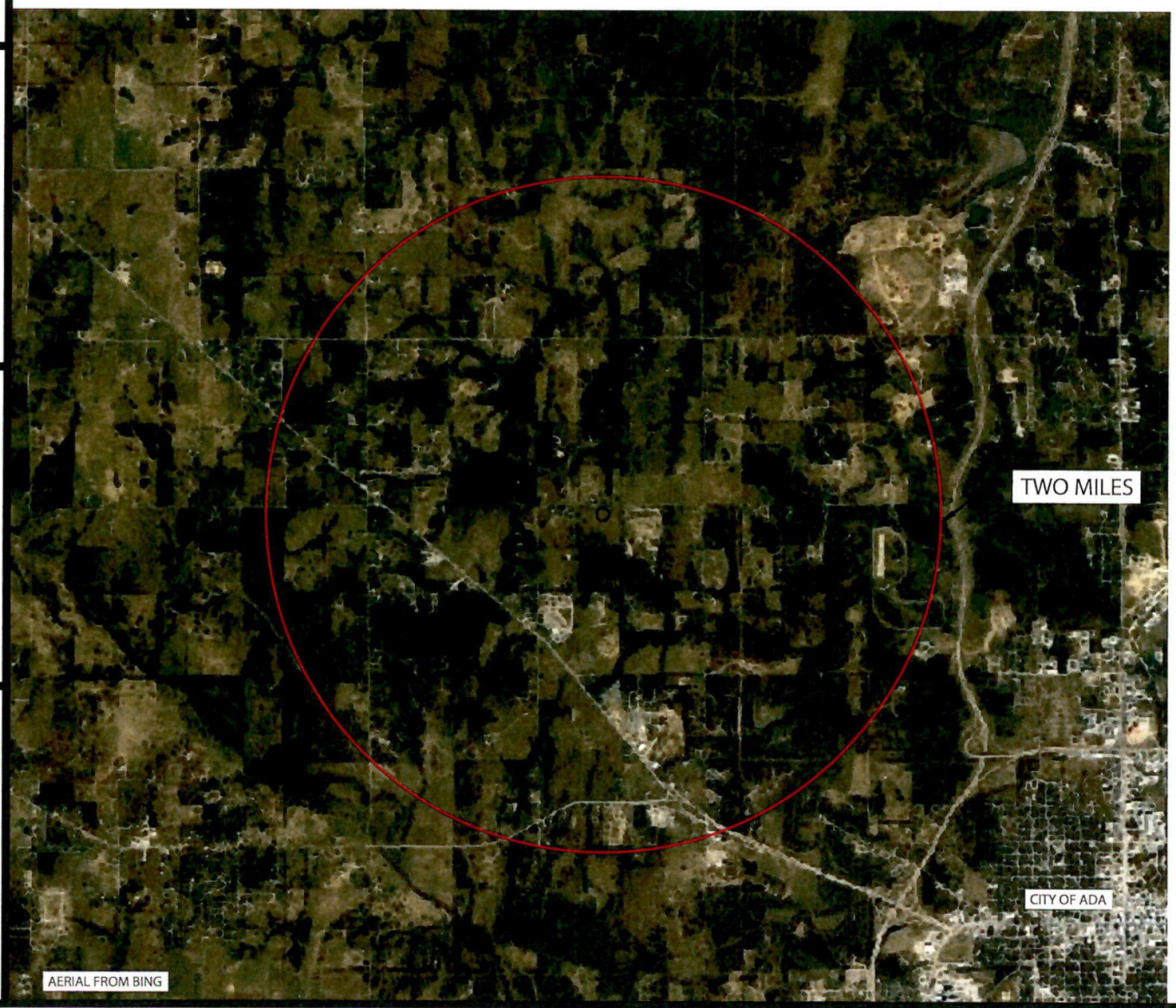


FIG. 1 PUBLIC WELL LOCATION	
CHECKED BY: JEFF SHEPERD, P.E.	
JOB NUMBER: 183-660	ISSUE DATE: 01-31-19
PROJECT: CITY OF ADA TRANSFER STATION	

OWNER INFORMATION

CITY OF ADA, OKLAHOMA

CEC
Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

APPENDIX D

STORMWATER CALCULATIONS

STORMWATER DESIGN

ADA LANDFILL TRANSFER STATION
ADA, OKLAHOMA

Prepared For:

CITY OF ADA
231 S TOWNSEND STREET
ADA, OK 74820

Prepared By:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
OKLAHOMA CITY, OKLAHOMA

CEC Project 183-660

AUGUST 2019

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA

CA NO.: 6429
EXPIRES 6/30/20

Civil & Environmental Consultants, Inc.

Oklahoma City | 4045 NW 64th Street, Suite 415 | Oklahoma City, OK 73116 | p: 405-246-9411 | www.cecinc.com

TABLE OF CONTENTS

FIGURES

APPENDICES

TABLES

1.0 BACKGROUND

The following drainage report is being submitted for the City of Ada Municipal Solid Waste Transfer Station. The Property is approximately 40.2 acres, being a part of the Northwest Quarter (NW/4) of Section 24, Township 4 North, Range 5 East of the Indian Meridian, located west of N353 Road, south of E152 Road, in Ada, OK. The current project consists of a municipal waste transfer station to serve the nearby Ada Landfill. This transfer station will contain private drives, drainage infrastructure, water systems, sanitary sewer systems, and two detention ponds. See Figure A for the Site/Grading Plan.

2.0 PURPOSE

This drainage report describes how stormwater will be prevented from running on or into the transfer station as required by Administrative Code (OAC) 252:515-17. The report includes runoff calculations and the analysis for existing and proposed conditions. The detention analysis is provided to ensure that the post developed runoff rate is less than the pre-developed runoff rate, and that the development will not adversely impact any surrounding, upstream, or downstream properties.

3.0 METHODOLOGY

A drainage analysis was performed for the project using the following methodology:

Peak Flow Calculations:	Rational Method
Detention Calculations:	SCS Curve Number Method

3.1 RATIONAL METHOD

Peak flow rates are used to size pipes and culverts and are computed by the Rational Method using the following equation:

$$Q = C * I * A$$

Where:

Q	=	Flow rate, cubic feet per second (cfs)
C	=	Runoff coefficient
I	=	Rainfall intensity, inches per hour (in/hr)
A	=	Drainage area, acres (ac)

Runoff coefficients were obtained from the Oklahoma Department of Transportation (ODOT) Roadway Drainage Manual. These coefficients are a function of land use, percent imperviousness, type of soil, and topography. This chart can be found in Appendix A.

Drainage areas can be found in Figure BThe rainfall intensity is determined for a 25-year, 24-hour frequency rainfall event (OAC 252:515-17-2) from the ODOT Roadway Drainage Manual from a graph according to the time of concentration. The lines in this graph are more commonly referred to as Intensity-Duration-Frequency (IDF) curves and can be expressed using the following equation:

$$I = a/(t_c + b)^c$$

Where:

I	=	Intensity
t_c	=	Time of Concentration

A, b, and c are values that vary by storm frequency and ODOT Zone Determinations. Pontotoc County is within Zone 5, and the appropriate values were used. The Zone 5 IDF Curve and corresponding values can be found in Appendix B.

The time of concentration is determined as follows:

$$T_c = T_o + T_f$$

$$T_o = [k * (L_o^{0.37})] / (S_o^{0.20})$$

$$T_f = [k' * (L_f^{0.77})] / (S_f^{0.385})$$

Where:

T_c	=	Time of Concentration (minutes)
T_o	=	Time for overland flow (minutes)
T_f	=	Time for channel or gutter flow (minutes)
k	=	Dimensionless coefficient (factor of flow retardance through overland area)
L_o	=	Length of overland flow path (feet)
S_o	=	Slope of overland flow path, (feet/feet)
k'	=	Dimensionless coefficient (factor of flow impedance through channel)
L_f	=	Channel length (feet)
S_f	=	Channel slope (feet/feet)

Peak discharges rates at the 25 year storm event are used to ensure that the post-developed runoff rates do not exceed the pre-developed rates.

3.2 SCS CURVE NUMBER METHOD

Detention pond volume calculations are used to size the detention pond. These values are computed by the Rational Method, as well as the SCS Runoff Curve Number Method. See Section 3.1 regarding the discussion on the Rational Method. The following discusses the SCS Runoff Curve Number Method.

The formula used for the SCS Curve Number is:

$$Q = (P - 0.2S)^2 / (P + 0.8S)$$
$$S = (1000 / CN) - 10$$

Where:

Q	=	direct surface runoff depth (in)
P	=	storm rainfall (in)
S	=	maximum potential difference between rainfall and runoff (in).
CN	=	SCS curve number varying from 0-100

Storm rainfall data was obtained from the United States Geological Survey (USGS) Water-Resources Investigations Report 99-4232, Depth-Duration Frequency of Precipitation for Oklahoma. This map can be found in Appendix C.

SCS curve numbers were obtained from the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) TR-55, Urban Hydrology for Small Watersheds. These numbers are derived from factors such as hydrologic soil group and condition, cover type, and treatment. The two tables used can be found in Appendix D.

In order to properly determine the peak allowable discharge rate for the proposed conditions, this discharge rate was determined for existing conditions using the following equation:

$$Q_p = Q_u * A_m * Q * F_p$$

Where:

Q_p	=	peak discharge (cfs)
Q_u	=	unit peak discharge (csm/in)

A_m = drainage area (mi^2)

Q = runoff (in)

F_p = pond and swamp adjustment factor

Unit peak discharge values were obtained from the USDA NRCS TR-55, Urban Hydrology for Small Watersheds. These values are based on rainfall, time of concentration, and initial abstraction, and vary based on storm frequency. This table can be found in Appendix E.
The peak discharge obtained for existing conditions is the peak allowable discharge for proposed conditions. Once peak discharges values were determined, hydrographs were developed for each drainage area. These hydrographs were combined for existing and proposed conditions and used to determine the required detention volume by summing the area between the two curves.

4.0 EXISTING CONDITIONS

The existing site consists of pasture land as well as a small creek and is currently undeveloped. The property drains in a northeasterly and southeasterly direction. As per the NRCS Soil Survey, the existing soil conditions of the site and contributing drainage areas are primarily in the soil classification Group B, and contain slopes ranging from 1 to 8%. See Figure C for the NRCS Soil Survey Information.

Drainage basins were determined for the existing conditions, which consist of on-site and off-site drainage. A portion of the existing site, specifically Existing Drainage Area 2, drains to the north towards an existing 15 inch corrugated metal pipe that runs underneath E152 Road and leaves the site. The remainder of the site, Existing Drainage Area 1, drains to the south and flow into an existing creek and leaves the site.

Assuming a 25 year (yr) storm event, detention calculations were performed using the SCS Curve Number (CN) method. Time of concentration calculations were performed using the Over Flow Method. SCS CN numbers or values were applied based on the existing conditions.

Based on the existing grassy conditions, a CN value of 58 was used, corresponding with Meadow Land. Furthermore, based on the existing grassy conditions, a k value of 1.040 was used, corresponding with Average Pasture.

The drainage calculations for all existing basins have been provided in Figure D.

5.0 PROPOSED CONDITIONS

The proposed development consists of two buildings, a private roadway and a parking lot, in addition to the transfer station. Stormwater management features to prevent drainage on or into the transfer station include culverts, weirs, ditches, and detention ponds. The detention ponds will detain stormwater from the development prior to release to the neighboring properties. See Section 5.1 for additional information on the detention ponds.

New drainage areas were determined for the proposed development as well as the off-site drainage area. The existing drainage patterns were maintained for the proposed conditions where possible, and developed runoff coefficients were utilized where applicable.

The off-site drainage from the west, primarily within Proposed Drainage Area 2, largely maintains its existing drainage path, before being intercepted by a drainage channel that routs it into one of the detention ponds. This detention pond will be constructed at a later date, however the drainage design was completed as though everything was to be completed at once, in order to properly account for all existing runoff. A berm will be constructed that will divide Proposed Drainage Area 2 and Proposed Drainage Area 5, which flows into the existing 15 inch corrugated metal pipe, and drains offsite. Proposed Drainage Area 4 consists of the southern detention pond and a small section of the property that flows directly into it. Proposed Drainage Area 1 sheet flows from the northern entrance before flowing into a gravel-lined trapezoidal ditch, with a bottom width of 3 feet, a depth of 9 inches, and 3:1 side slopes. This ditch flows into an 18 inch culvert that runs underneath the proposed road, and discharges into the south pond. Proposed Drainage Area 3 sheet flows from the east loop road into a gravel-lined trapezoidal channel with a bottom width of 3 feet, a depth of 8 inches, and 3:1 side slopes. This ditch flows into a 15 inch culvert that runs underneath

the proposed road and discharges into the south pond. In order to prevent contaminated stormwater leachate from flowing into the detention pond, a gravel-lined trapezoidal trench with a bottom width of 3 feet, a depth of 8 inches and 3:1 side slopes will be constructed on the transfer station pad. This trench will flow into a 18 inch pipe and run south before turning and routing into the leachate pond off-site to the east.

Assuming a 25 year (yr) storm event, detention calculations were performed using the SCS Curve Number (CN) method in order to size each pond. Peak flow calculations were performed utilizing the Rational Method in order to size each drainage structure. Time of concentration calculations were performed using the Over Flow Method. SCS CN numbers and Runoff Coefficients values were applied based on the proposed conditions.

For all undisturbed area, a C value of 0.25 was used, corresponding with pasture land with sandy soil. For all graded areas that will not have any other structure or material placed over the surface, a C value of 0.45 was used, corresponding with cultivated soil. For all other areas of the transfer station site, a C value of 0.85 was used, corresponding with industrial use. For all flows within undisturbed areas, a k value of 1.040 was used, corresponding with average pasture. For all flows over a graded area that will not have any other structure or material placed over the surface, a k value of 0.775 was used, corresponding with cultivated ground. For all flows within the gravel-lined drainage ditches, a k value of 0.604 was used, corresponding with rocky, bare soil. For all flows along the transfer station pad, a k value of 0.372 was used, corresponding with pavement. For all channel flows within the drainage ditches, a k' value of 0.01252 was used, corresponding with a triangular or trapezoidal ditch.

Detention calculations were performed using the SCS Method. Because Drainage Areas 1, 2, 3, and 4 are all routed to either the west or south pond, these peak flow values were routed to their respective ponds in order to size each pond. Drainage Areas 5 and 6 were treated as bypass, as it is not intercepted by either pond. Time of concentration values were calculated using the Overland Flow Method. SCS Curve Numbers were determined based on proposed conditions.

For all areas within undisturbed areas, a CN value of 58 was used, corresponding with meadow land. For all graded areas that will not have any other structure or material placed over the surface, as CN value of 86 was used, corresponding with fallow, bare soil. For all other areas of the transfer station site, a CN value of 88 was used, corresponding with urban industrial use.

A summary table of all equations and coefficients can be found in Table A. A summary table of all drainage structures can be found in Table B.
The proposed drainage calculations are included in Figure E.

5.1 DETENTION

To meet OAC 252:515 requirements, a detention pond will be constructed to ensure that developed flows leaving the site do not increase compared to the pre-developed conditions.

There are three points of analysis for the detention calculations for this site. One is located on the northern end of the site, consistent with the existing 15 inches corrugated metal pipe. The other two are the outlet structure discharge points for each detention pond, both of which drain into the existing nearby creek. All possible on-site drainage was conveyed to the one of the two proposed detention pond to ensure the maximum level of detention, with the exception of Drainage Area 5, which drains off-site to the north, Drainage Area 6, which drains into the off-site leachate pond, and Drainage Area 7, which drains directly into the west channel. Each pond will have at least 1 foot of freeboard. The west pond will discharge into a gravel-lined trapezoidal weir with a bottom width of 3 feet and side slopes of 3:1. This weir will transition into a similarly sized channel, and discharge off-site. The south pond will discharge through a gravel-lined trapezoidal weir with a bottom width of 9 feet and side slopes of 3:1, before flowing into the creek.

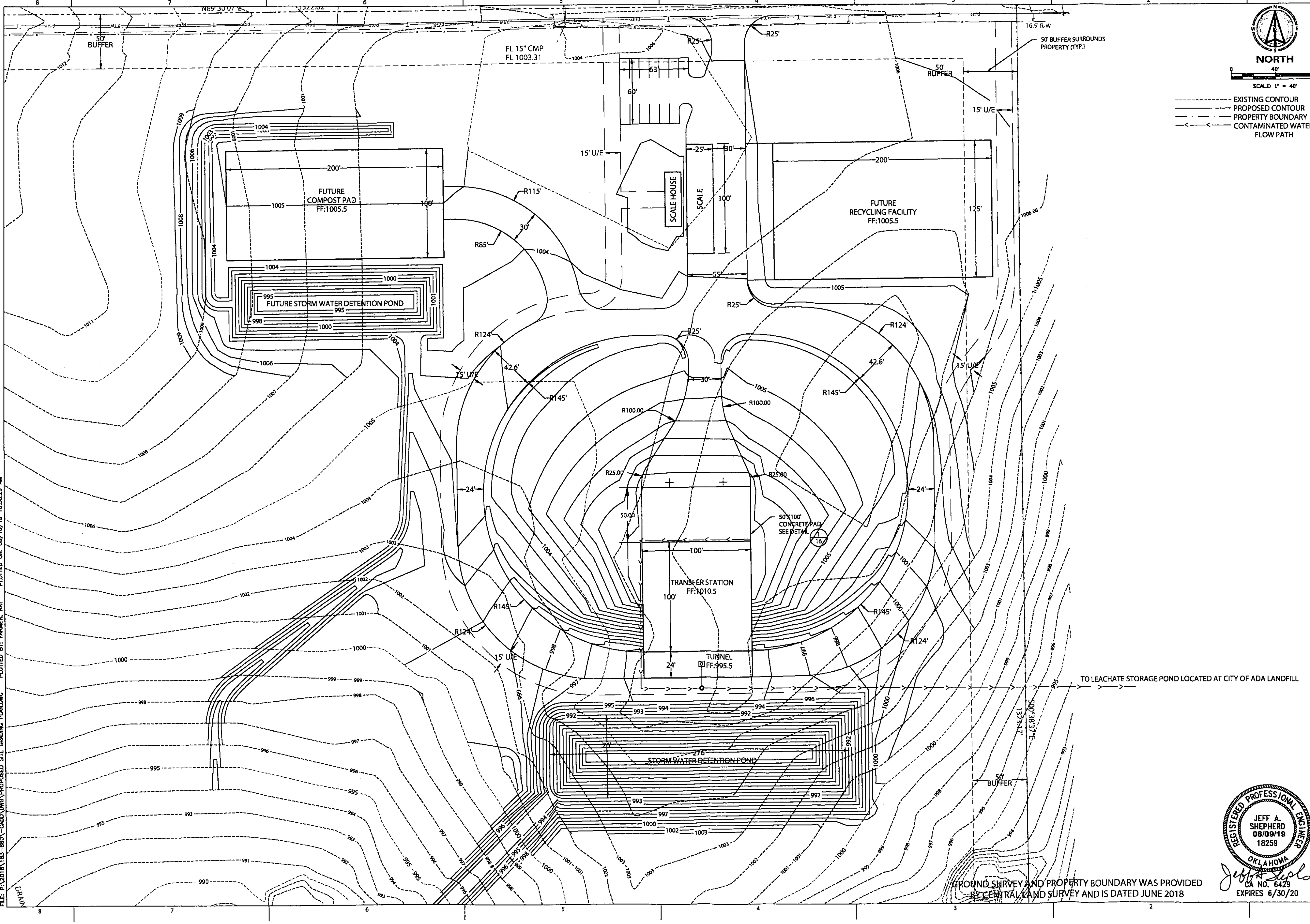
Due to the size of the ponds, the bottom of each outlet structure is not be placed at the bottom of their respective ponds since the discharge would exceed the maximum allowable amount. Therefore, the crest of each outlet structure was placed above the bottom of the pond. In order to prevent standing water, a 12 inch pipe and associated isolation valve will be installed underneath

both outlet structures and will run under the discharge channel. Based on the pipe sizing, all water from the west pond will drain out within 76 minutes, and from the south pond within 152 minutes.

The emergency overflow weirs were designed as though the outlet structure was completely blocked as well as to properly allow the discharge from a 25 year storm. The south pond will have a trapezoidal overflow weir with a bottom width of 9 feet, a depth of 1 foot, and 3:1 side slopes. The west pond will have a trapezoidal overflow weir with a bottom width of 5 feet, a depth of 1 foot, and 3:1 side slopes.

The pond and outlet structure was designed to ensure the developed flows would be attenuated for the 25 year storm event. The detention calculations were performed utilizing the Rational and SCS Curve Number Method, for both peak discharge and detention volume. While the ponds are far deeper than what is required for detention, additional depth is proposed to provide extra fill material for the associated landfill. The results of the detention pond calculations are shown in Table 3.

FIGURE A
STORMWATER DESIGN
SITE/GRADING PLAN



N69°30'07"E
1522.82
50' BUFFER
FL 15" CMP
FL 1003.31
16.5' R/W
50' BUFFER SURROUNDS PROPERTY (TYP.)
NORTH
0
40'
80'
SCALE: 1" = 40'
EXISTING CONTOUR
PROPOSED CONTOUR
PROPERTY BOUNDARY
CONTAMINATED WATER FLOW PATH
FUTURE COMPOST PAD
FF:1005.5
200'
100'
FUTURE STORM WATER DETENTION POND
63'
60'
15' U/E
SCALE HOUSE
SCALE
25'
30'
100'
55'
R115'
R85'
R25'
FUTURE RECYCLING FACILITY
FF:1005.5
125'
R124'
42.6'
R145'
R100.00
R25.00
24'
50.00
50'X100' CONCRETE PAD SEE DETAIL
1
16
TRANSFER STATION
FF:1010.5
TUNNEL
FF:995.5
TO LEACHATE STORAGE POND LOCATED AT CITY OF ADA LANDFILL
STORM WATER DETENTION POND
276'
76'
S00°38'37"E
1323.17'
GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018
REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO. 6429
EXPIRES 6/30/20

FILE: P:\2018\183-660\-CADD\DWG\PROPOSED SITE GRADING PLAN.DWG PLOTTED BY: FARMER, RAY PLOTTED ON: 08/10/19 10:50:29 AM

REVISION	DESCRIPTION	DATE:

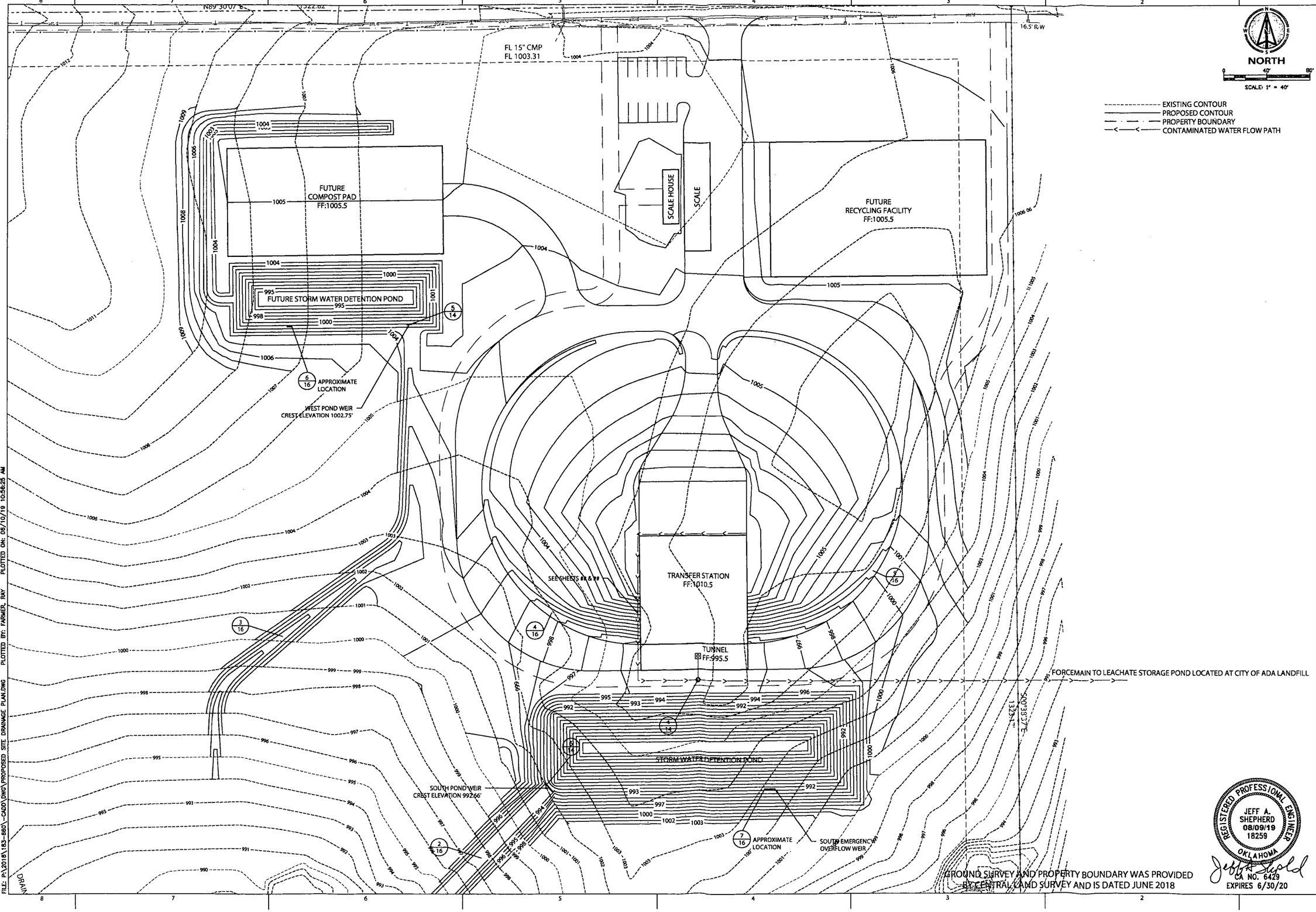
Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

PROPOSED SITE GRADING

DATE: 02/XX/19
DRAWN BY: Ray Farmer
PROJECT NO: 183-660
APPROVED BY: Jeff Shepherd



GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO. 6429
EXPIRES 6/30/20

DATE:
DESCRIPTION
REVISION

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

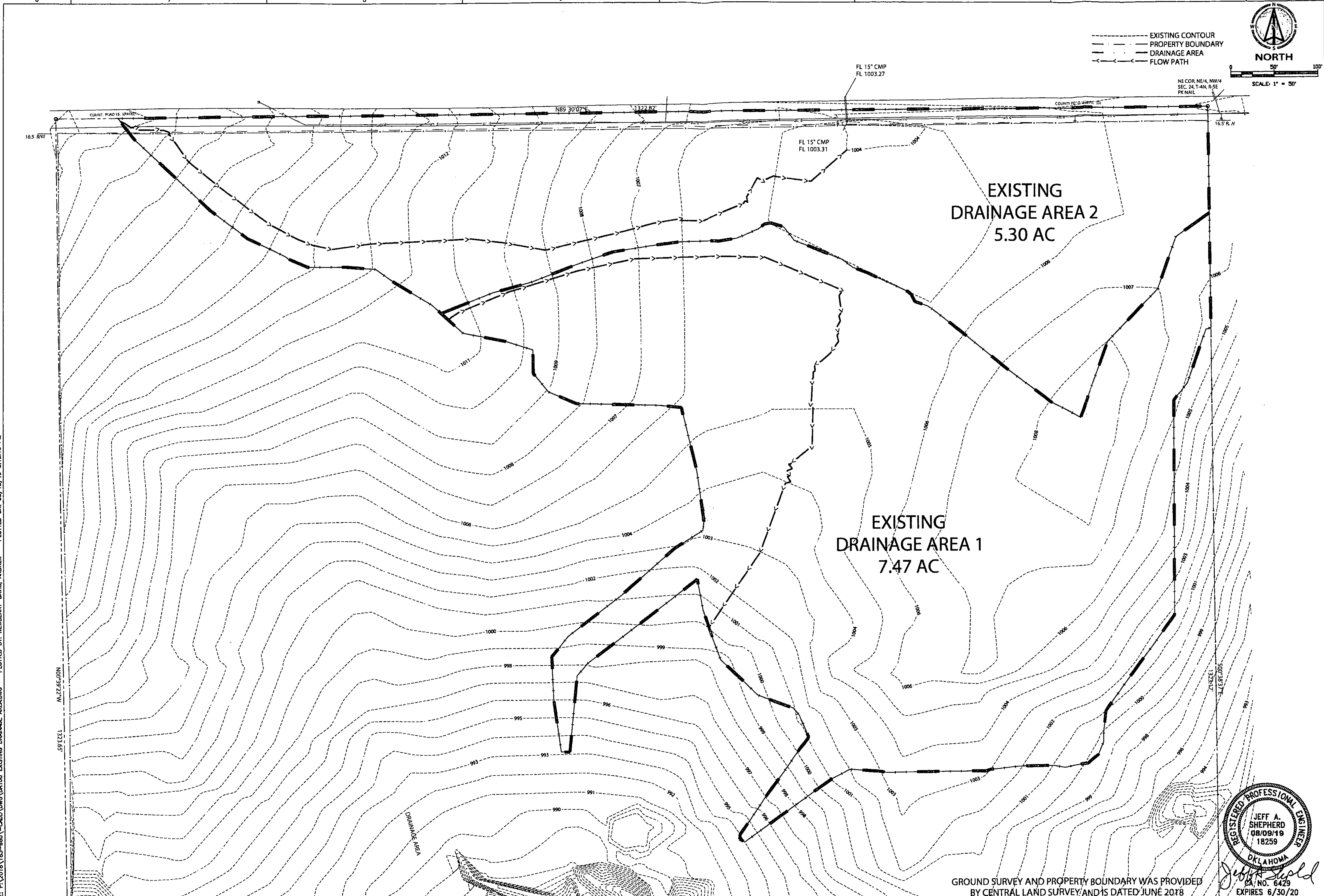
CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

PROPOSED DRAINAGE PLAN

DATE: 02/XX/19 | DRAWN BY: Ray Farmer
PROJECT NO: 183-660
APPROVED BY: Jeff Shepherd

FILE: P:\2018\183-660\--CADD\DWG\PROPOSED SITE DRAINAGE PLAN.DWG PLOTTED ON: 05/10/19 10:56:25 AM PLOTTED BY: FARMER, RAY

FIGURE B
STORMWATER DESIGN
EXISTING AND PROPOSED DRAINAGE AREA MAPS


EXISTING CONTOUR
PROPERTY BOUNDARY
DRAINAGE AREA
FLOW PATH
NORTH
0
50'
100'
SCALE: 1" = 50'
NE COR. NE/4, NW/4
SEC. 24, T-4N, R-5E
PK NAIL
FL 15" CMP
FL 1003.27
FL 15" CMP
FL 1003.31
N89°30'07"E
1322.82'
16.5' R/W
16.5' R/W
N00°39'22"W
1323.65'
S00°38'37"E
1323.17'
EXISTING
DRAINAGE AREA 2
5.30 AC
EXISTING
DRAINAGE AREA 1
7.47 AC
DRAINAGE AREA
GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED
BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018
REGISTERED PROFESSIONAL ENGINEER
JEFF A.
SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO. 6429
EXPIRES 6/30/20

FILE: P:\2018\183-660\-CADD\DWG\DA100 EXISTING DRAINAGE AREA.DWG PLOTTED BY: NEWBERRY-DAVIS, ANDREW PLOTTED ON: 03/15/19 3:18:13 PM

REVISION	DESCRIPTION	DATE:

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

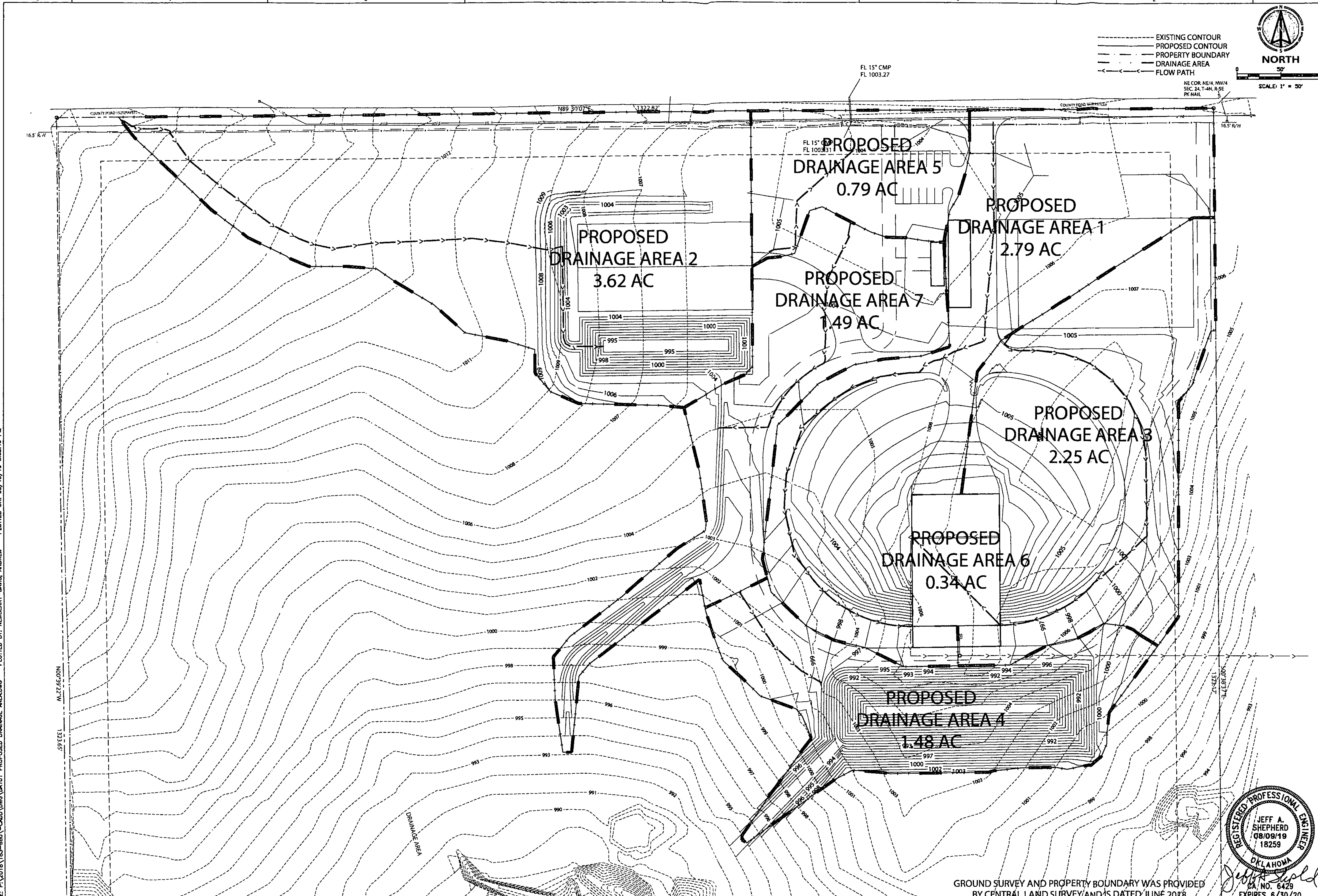
TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

EXISTING DRAINAGE AREA

DATE:	02/XX/19	DRAWN BY:	Ray Farmer
PROJECT NO:			183-660
APPROVED BY:			Jeff Shepherd

Figure 1


EXISTING CONTOUR
PROPOSED CONTOUR
PROPERTY BOUNDARY
DRAINAGE AREA
FLOW PATH
NORTH
SCALE: 1" = 50'
FL 15" CMP
FL 1003.27
NE COR. NE/4, NW/4
SEC. 24, T-4N, R-5E
PK NAIL
N89 30'07"E 1322.82'
16.5' R/W
N00°39'22"W 1323.65'
S00°38'37"E 1323.17'
PROPOSED
DRAINAGE AREA 5
0.79 AC
PROPOSED
DRAINAGE AREA 1
2.79 AC
PROPOSED
DRAINAGE AREA 2
3.62 AC
PROPOSED
DRAINAGE AREA 7
1.49 AC
PROPOSED
DRAINAGE AREA 3
2.25 AC
PROPOSED
DRAINAGE AREA 6
0.34 AC
PROPOSED
DRAINAGE AREA 4
1.48 AC
DRAINAGE AREA
GROUND SURVEY AND PROPERTY BOUNDARY WAS PROVIDED
BY CENTRAL LAND SURVEY AND IS DATED JUNE 2018
REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO. 6429
EXPIRES 6/30/20

REVISION	DESCRIPTION	DATE:

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415, Oklahoma City, OK 73116
T (405) 246-9411 www.cecinc.com
CA #6429, Exp. 06/30/20

TIER II PERMIT APPLICATION - PERMIT DRAWINGS
ADA, PONTOTOC COUNTY, OKLAHOMA

CITY OF ADA
231 S. TOWNSEND
ADA, OKLAHOMA 74820

PROPOSED DRAINAGE AREA

DATE:	02/XX/19	DRAWN BY:	Ray Farmer
PROJECT NO:	183-660		
APPROVED BY:	Jeff Shepherd		

Figure 2

FILE: P:\2018\183-660\-CADD\DWG\DA101 PROPOSED DRAINAGE AREA.DWG PLOTTED BY: NEWBERRY-DAVIS, ANDREW PLOTTED ON: 03/15/19 3:32:49 PM

FIGURE C
STORMWATER DESIGN
NRCS SOIL SURVEY

Soil Map—Pontotoc County, Oklahoma

Map Scale: 1:3,390 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pontotoc County, Oklahoma
Survey Area Data: Version 14, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 17, 2015—Oct 19, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GaB	Galey loamy fine sand, 1 to 3 percent slopes	17.5	43.4%
KsD	Konawa loamy fine sand, 3 to 8 percent slopes	1.3	3.1%
KsD2	Konawa loamy fine sand, 3 to 8 percent slopes, eroded	20.2	50.0%
KtD3	Konawa loamy fine sand, 3 to 8 percent slopes, severely eroded	1.4	3.5%
Totals for Area of Interest		**40.4**	**100.0%**

Pontotoc County, Oklahoma

GaB—Galey loamy fine sand, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: dx79
Elevation: 600 to 1,500 feet
Mean annual precipitation: 28 to 40 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 230 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Galey and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Galey

Setting

Landform: Paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and/or loamy alluvium

Typical profile

Ap - 0 to 14 inches: loamy fine sand
Bt - 14 to 72 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Deep Sand Savannah (R084AY018OK)
Hydric soil rating: No

Minor Components

Stidham

Percent of map unit: 10 percent
Landform: Low sand ridges on paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Deep Sand Savannah (R084AY018OK)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Pontotoc County, Oklahoma
Survey Area Data: Version 14, Sep 10, 2018

Pontotoc County, Oklahoma

KsD—Konawa loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tq7g
Elevation: 700 to 1,640 feet
Mean annual precipitation: 33 to 40 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 200 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Konawa and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Konawa

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy and sandy alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 6 inches: loamy fine sand
E - 6 to 16 inches: loamy fine sand
Bt - 16 to 45 inches: sandy clay loam
BC - 45 to 58 inches: fine sandy loam
C - 58 to 72 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: Sandy Loam Savannah (R084AY075OK)
Hydric soil rating: No

Minor Components

Dougherty

Percent of map unit: 7 percent
Landform: Dunes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Deep Sand Savannah (R084AY018OK)
Hydric soil rating: No

Stephenville

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Sandy Loam Savannah (R084AY075OK)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Pontotoc County, Oklahoma
Survey Area Data: Version 14, Sep 10, 2018

Pontotoc County, Oklahoma

KsD2—Konawa loamy fine sand, 3 to 8 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2tq7h
Elevation: 700 to 1,640 feet
Mean annual precipitation: 33 to 40 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Konawa, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Konawa, Eroded

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy and sandy alluvium derived from sedimentary rock

Typical profile

A - 0 to 6 inches: loamy fine sand
Bt - 6 to 21 inches: sandy clay loam
BC - 21 to 34 inches: sandy clay loam
C - 34 to 72 inches: loamy fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: Sandy Loam Savannah (R084AY075OK)
Hydric soil rating: No

Minor Components

Stephenville, eroded

Percent of map unit: 6 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Sandy Loam Savannah (R084AY075OK)
Hydric soil rating: No

Dougherty, eroded

Percent of map unit: 4 percent
Landform: Dunes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Deep Sand Savannah (R084AY018OK)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Pontotoc County, Oklahoma
Survey Area Data: Version 14, Sep 10, 2018

Pontotoc County, Oklahoma

KtD3—Konawa loamy fine sand, 3 to 8 percent slopes, severely eroded

Map Unit Setting

National map unit symbol: 2tq7j
Elevation: 700 to 1,640 feet
Mean annual precipitation: 33 to 40 inches
Mean annual air temperature: 59 to 63 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Konawa, severely eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Konawa, Severely Eroded

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy and sandy alluvium derived from sedimentary rock

Typical profile

A - 0 to 6 inches: loamy fine sand
Bt - 6 to 21 inches: sandy clay loam
BC - 21 to 34 inches: sandy clay loam
C - 34 to 72 inches: loamy fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: Sandy Loam Savannah (R084AY075OK)
Hydric soil rating: No

Minor Components

Dougherty, severely eroded

Percent of map unit: 5 percent
Landform: Dunes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Deep Sand Savannah (R084AY018OK)
Hydric soil rating: No

Eufaula, severely eroded

Percent of map unit: 5 percent
Landform: Dunes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Deep Sand Savannah (R084AY018OK)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Pontotoc County, Oklahoma
Survey Area Data: Version 14, Sep 10, 2018

FIGURE D
STORMWATER DESIGN
EXISTING DRAINAGE CALCULATIONS

DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation:	DA-1 Existing
D.A.:	7.47 acres
Weighted CN:	58
Initial Abstraction (Ia)	1.448

RUNOFF COEFFICIENT C	Acres
Meadow (CN=58)	7.47
Urban; industrial (CN=88)	0.00
Fallow; bare soil (CN=86)	0.00
TOTAL SITE ACREAGE	7.47

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pasture	1.040

24 HOUR RAINFALL	Inches
2 Year	3.5
5 Year	4.8
10 Year	5.8
25 Year	7.5

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	874	0.0100	1.0400	32.02	
Channel Flow:	**Length (ft)**	**Slope (ft/ft)**	**k'**	**Tf**	
				0.00	
			Total	**32.02**	**min**

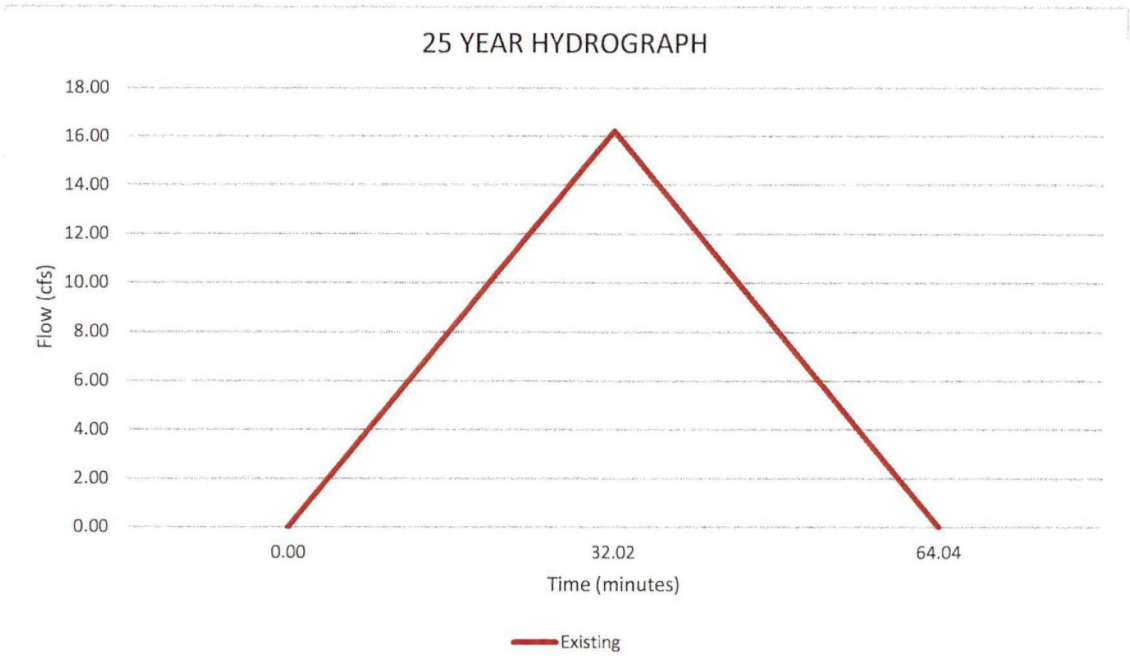
RUNOFF CALCULATIONS

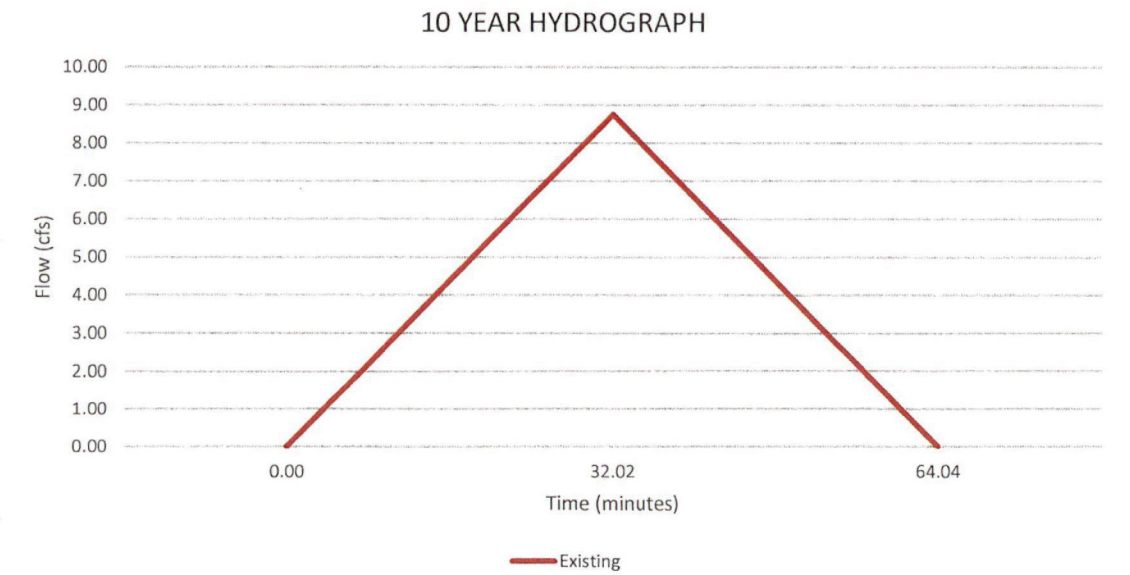
SCS Method	Rainfall	S	Runoff (in)	Ia/P
2 Year	3.5	7.24	0.45	0.41
5 Year	4.8	7.24	1.06	0.30
10 Year	5.8	7.24	1.63	0.25
25 Year	7.5	7.24	2.76	0.19

PEAK DISCHARGE CALCULATIONS

SCS Method	Qu (csm/in)	Area (miles)	Runoff (in)	Fp	Peak (cfs)
2 Year	340	0.012	0.45	1	1.80
5 Year	440	0.012	1.06	1	5.45
10 Year	460	0.012	1.63	1	8.77
25 Year	505	0.012	2.76	1	16.24

DA-1 Existing





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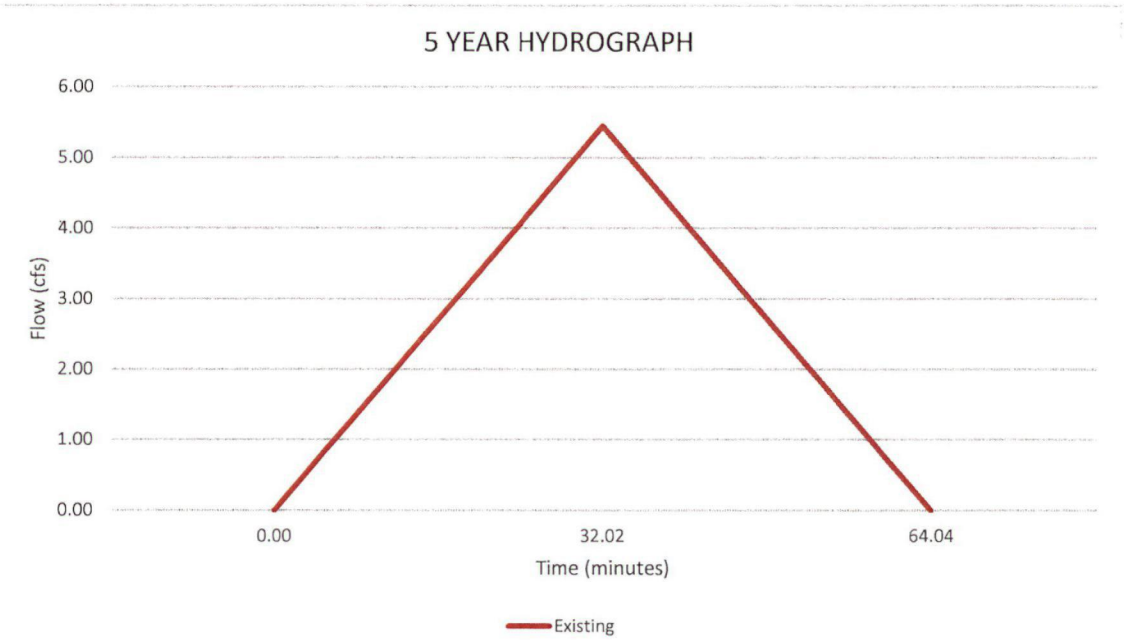
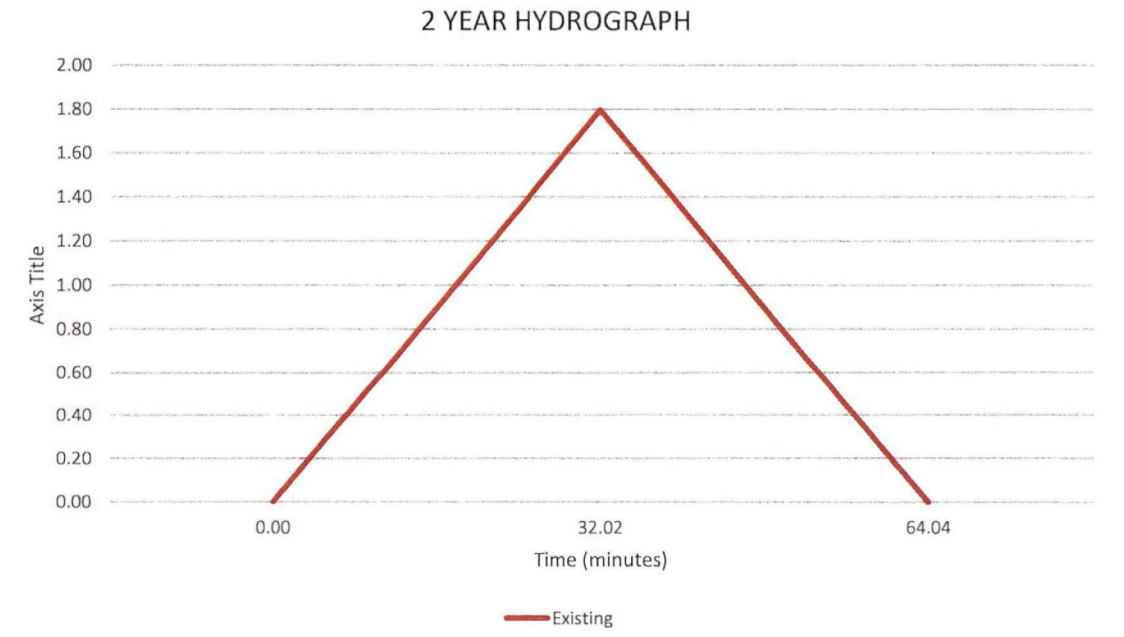




DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation:	DA-2 Existing
D.A.:	5.30 acres
Weighted C:	58
Initial Abstraction (Ia)	1.448

RUNOFF COEFFICIENT C	Acres
Meadow (CN=58)	5.30
Urban; industrial (CN=88)	0.00
Fallow; bare soil (CN=86)	0.00
TOTAL SITE ACREAGE	5.30

RETARDANCE FACTOR K	
Bare, Rocky Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pasture	1.040

24 HOUR RAINFALL	Inches
2 Year	3.5
5 Year	4.8
10 Year	5.8
25 Year	7.5

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	974	0.0200	1.0400	29.01	
Channel Flow:	Length (ft)	Slope (ft/ft)	k'	Tf	
				0.00	
			Total	**29.01**	**min**

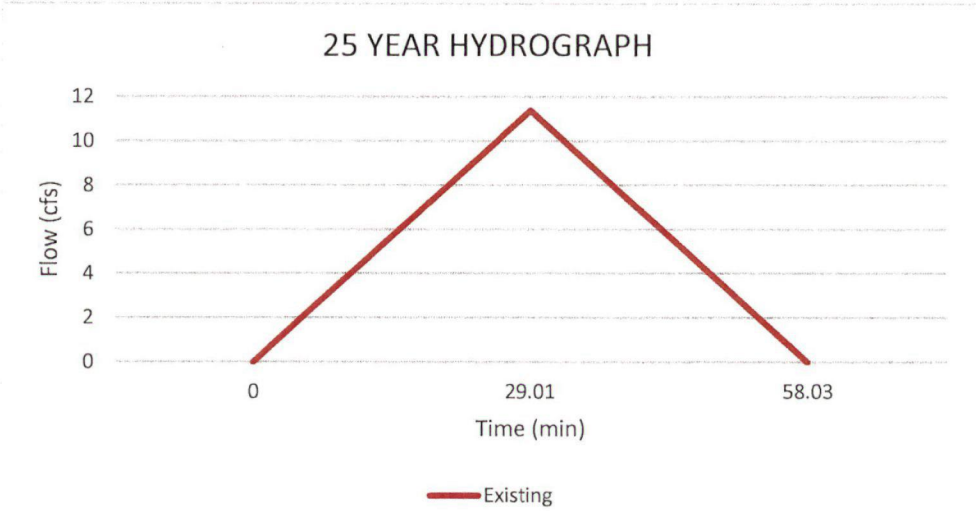
RUNOFF CALCULATIONS

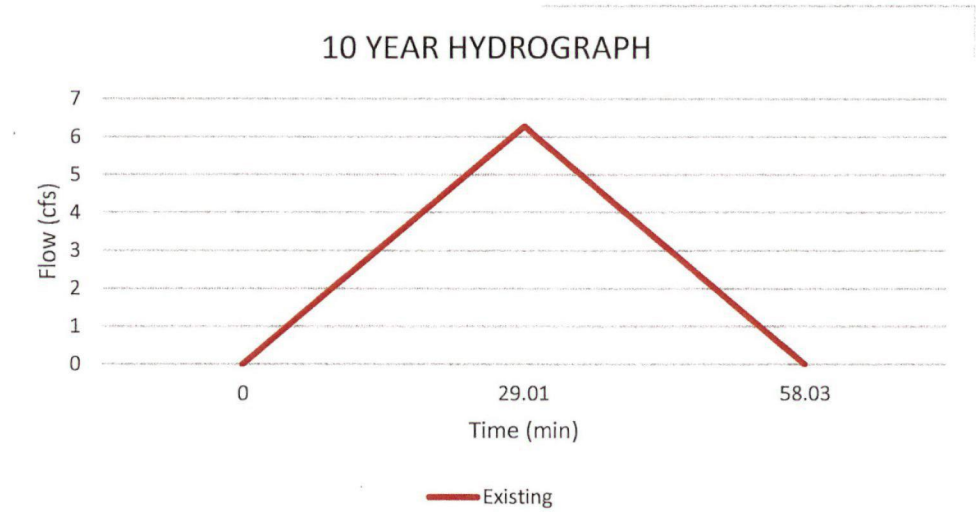
SCS Method	Rainfall	S	Runoff (in)	Ia/P
2 Year	3.5	7.24	0.45	0.41
5 Year	4.8	7.24	1.06	0.30
10 Year	5.8	7.24	1.63	0.25
25 Year	7.5	7.24	2.76	0.19

PEAK DISCHARGE CALCULATIONS

SCS Method	Qu (csm/in)	Area (miles)	Runoff (in)	Fp	Peak (cfs)
2 Year	345	0.008	0.45	1	1.29
5 Year	440	0.008	1.06	1	3.86
10 Year	465	0.008	1.63	1	6.29
25 Year	500	0.008	2.76	1	11.41

DA-2 Existing





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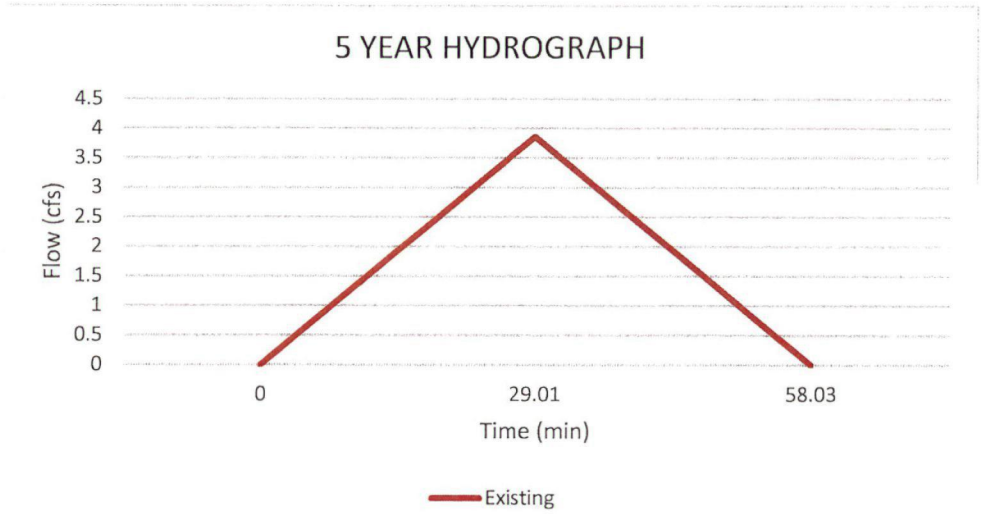


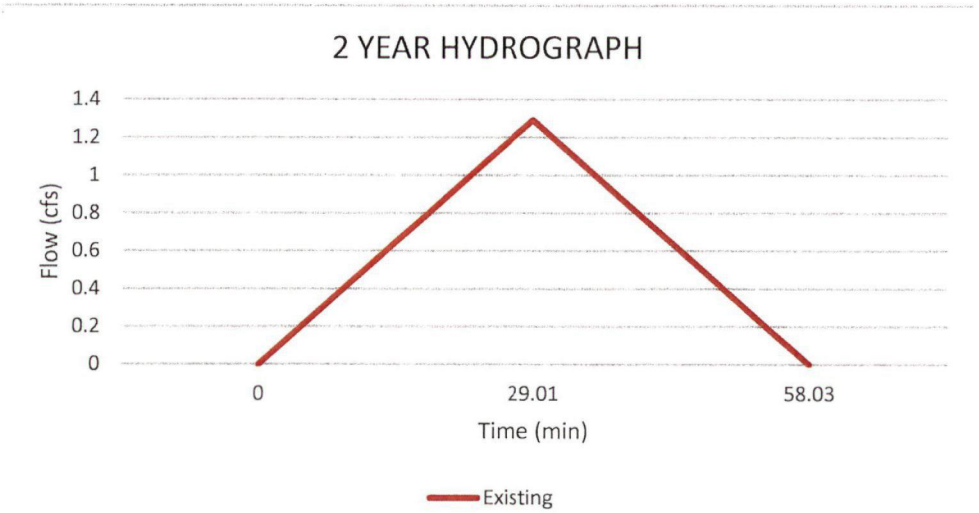


FIGURE E
STORMWATER DESIGN
PROPOSED DRAINAGE CALCULATIONS

DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation: DA-1 Proposed
D.A.: 2.79 acres
Weighted C: 0.85

RUNOFF COEFFICIENT C	Acres
Pasture; sandy soil (C=0.25)	0.00
Industrial; heavy (C=0.85)	2.79
Cultivated, heavy (C=0.45)	0.00
TOTAL SITE ACREAGE	2.79

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pasture	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	342	0.0050	0.6040	15.09	
			Total	**15.09**	**min**

RUNOFF CALCULATIONS

	Intensity (in/hr)		Q=CiA (cfs)
i2=	3.77	Q2=	8.95
i5=	4.88	Q5=	11.58
i10=	5.09	Q10=	12.08
i25=	6.32	**Q25=**	**14.98**

STRUCTURE CAPACITY

Open Channel Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

West Ditch

Height (feet)=	0.75	
Bottom Width (feet)=	3.00	
Top width (feet)=	7.50	
n=	0.023	
S=	2.00%	sq.ft.
A=	3.94	feet
Wet.Per.=	7.74	feet
Hydr. Radius=	0.51	fps
Velocity	**5.82**	**cfs**
Q=	**22.92**	

Culvert Capacity

Supporting Calculations

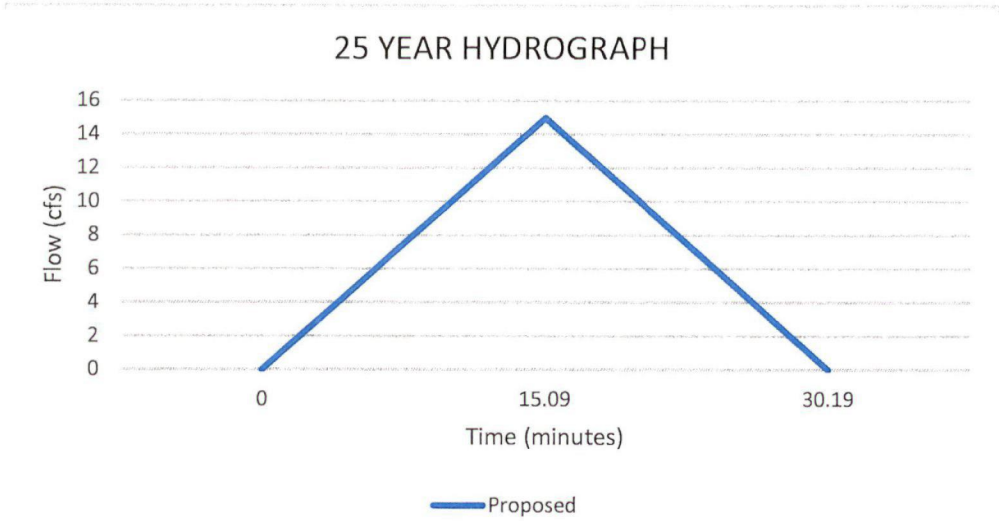
Using Manning's equation to determine adequacy of structure.

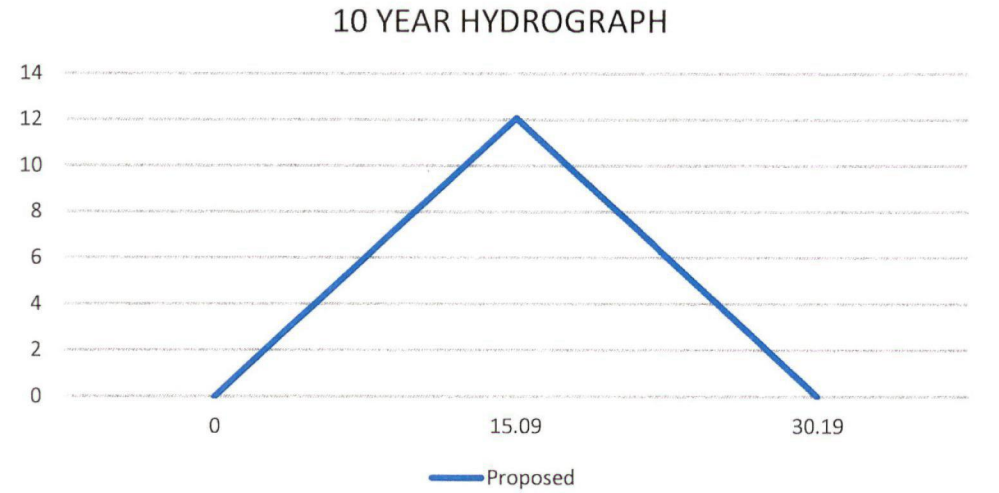
Q = 1.486/n * A * R ^2/3 * S ^1/2

West Culvert

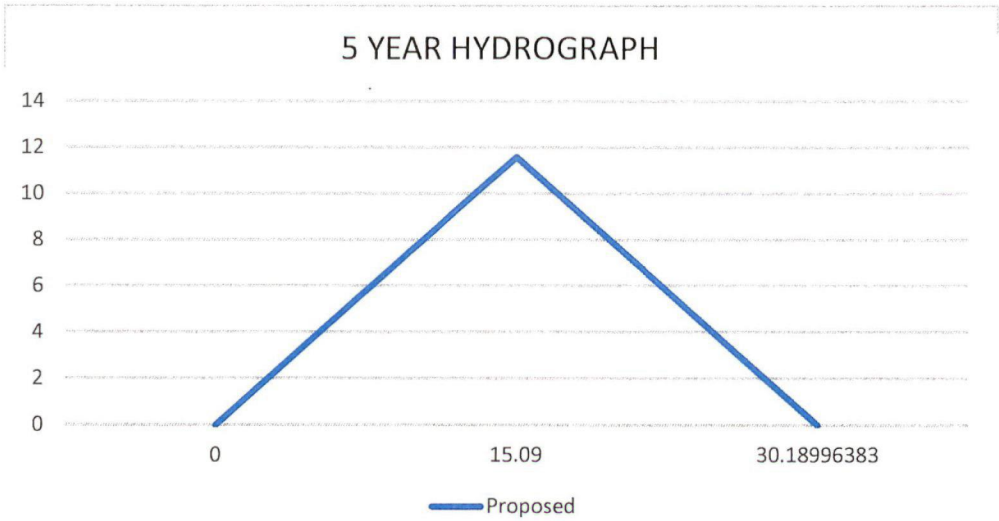
Diameter (in)=	18.00	
n=	0.013	
S=	4.48%	
A=	1.77	sq.ft.
Wet.Per.=	4.71	feet
Hydr. radius=	0.38	feet
Velocity=	12.58	fps
Q=	**22.23**	**cfs**

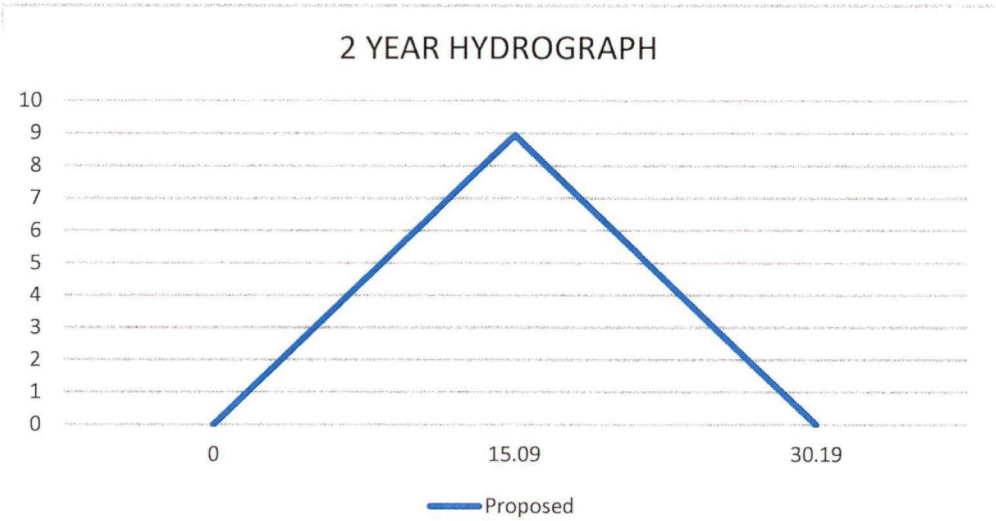
DA-1 Hydrographs





DA-1 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation: DA-2 Proposed
D.A.: 3.620 acres
Weighted C: 0.426

RUNOFF COEFFICIENT C	Acres
Pasture; sandy soil (C=0.25)	2.25
Industrial; heavy (C=0.85)	0.91
Cultivated, heavy (C=0.45)	0.46
TOTAL SITE ACREAGE	3.62

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pasture	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	563	0.0300	1.0400	21.84	
			Total	**21.84**	**min**

RUNOFF CALCULATIONS

	Intensity (in/hr)		Q=CiA (cfs)
i2=	3.10	Q2=	4.79
i5=	4.10	Q5=	6.33
i10=	4.25	Q10=	6.55
i25=	5.38	**Q25=**	**8.31**

STRUCTURE CAPACITY

Open Channel Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

$$Q = 1.486/n * A * R^{2/3} * S^{1/2}$$

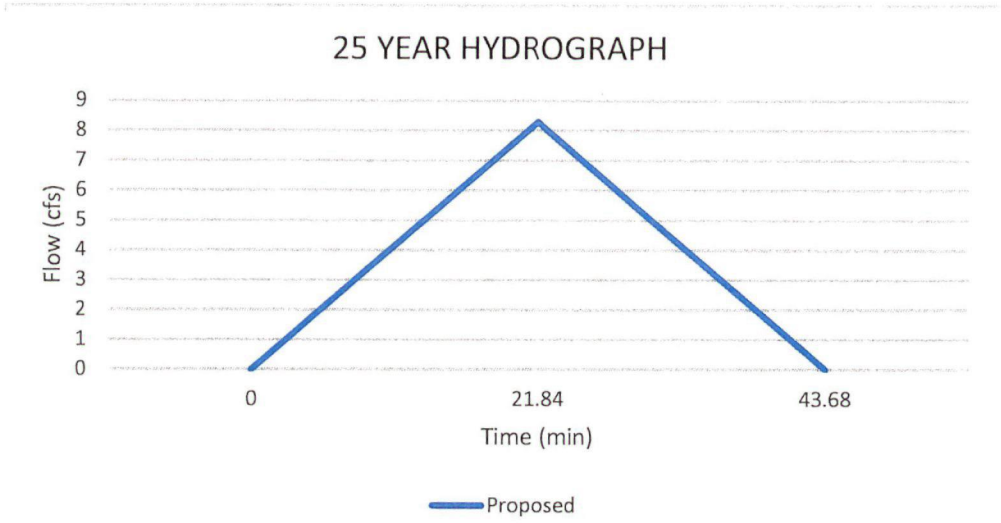
West Pond Channel

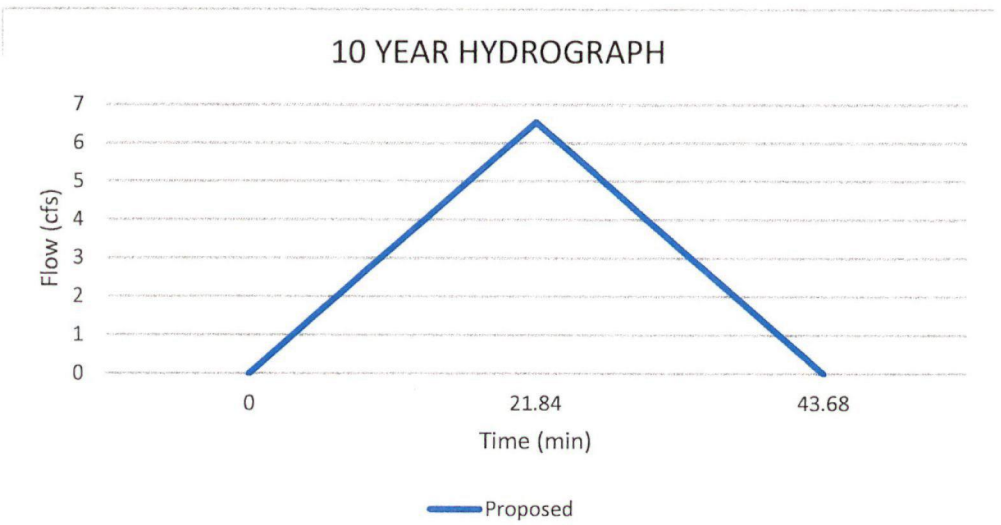
Height (feet)=	2.00	
Bottom Width (feet)=	3.00	
Top width (feet)=	15.00	
n=	0.023	
S=	1.00%	
A=	18.00	sq. ft
Wet.Per.=	15.65	feet
Hydr. Radius=	1.15	feet
Velocity	**7.09**	**fps**
Q=	**127.67**	**cfs**

Required Head:

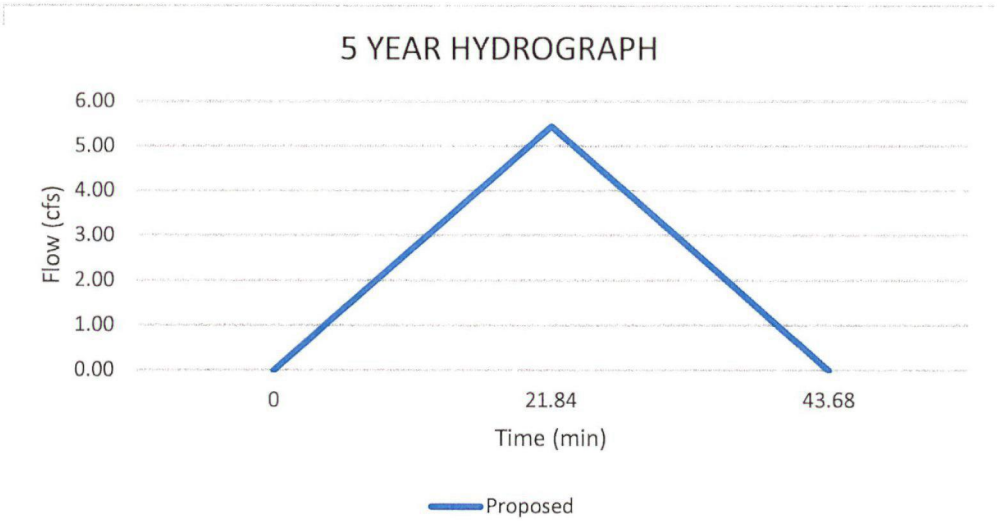
D+1.5*(V^2/2g)=	0.00 ft	D+1.5*(V^2/2g)=	0.00 ft

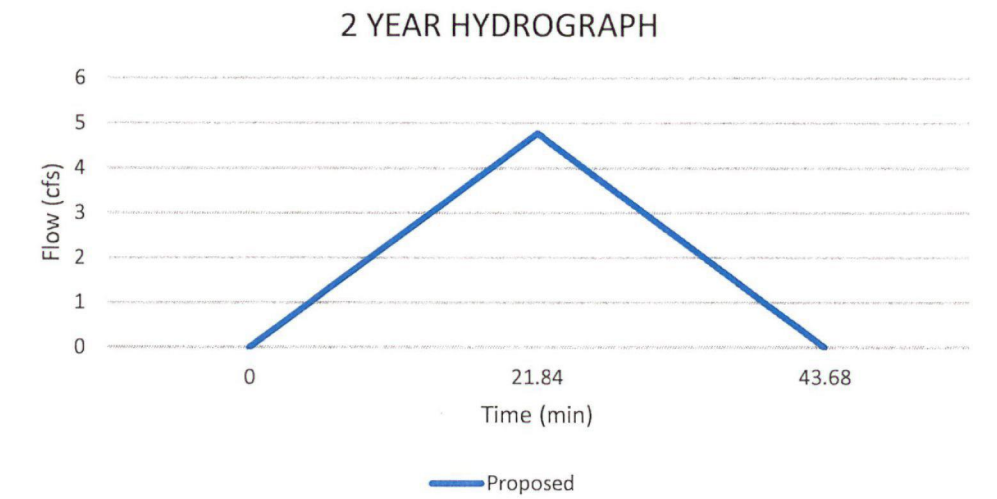
DA-2 Hydrographs





DA-2 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation: DA-3 Proposed
D.A.: 2.250 acres
Weighted C: 0.790

RUNOFF COEFFICIENT C	Acres
Pasture; sandy soil (C=0.25)	0.00
Industrial; heavy (C=0.85)	1.91
Cultivated, heavy (C=0.45)	0.34
TOTAL SITE ACREAGE	2.25

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pasture	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	81	0.0300	0.6040	6.19	
Channel Flow:	Length (ft)	Slope (ft/ft)	k'	Tf	
	339	0.008	0.01252	7.13	
Channel Flow:	Length (ft)	Slope (ft/ft)	k'	Tf	
		0.030	0.01252	0.00	
			Total	**13.32**	**min**

RUNOFF CALCULATIONS

	Intensity (in/hr)		Q=CiA (cfs)
i2=	4.01	Q2=	7.12
i5=	5.15	Q5=	9.14
i10=	5.38	Q10=	9.57
i25=	6.63	**Q25=**	11.77

STRUCTURE CAPACITY

Open Channel Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

East Ditch

Height (feet)=	0.67	
Bottom Width (feet)=	3.00	
Top width (feet)=	7.00	
n=	0.023	
S=	2.00%	sq.ft.
A=	3.34	feet
Wet.Per.=	7.22	feet
Hydr. Radius=	0.46	fps
Velocity	**5.46**	**cfs**
Q=	**18.22**	

Culvert Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

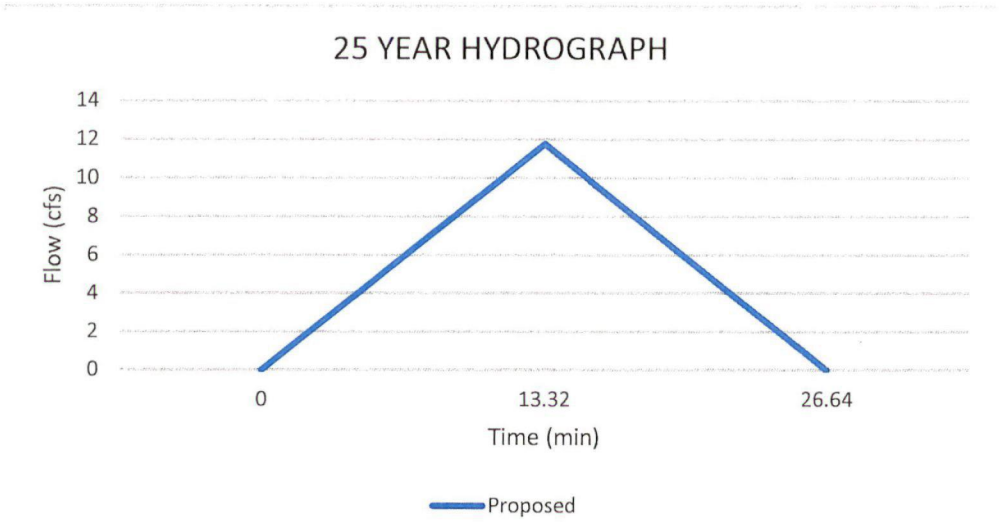
East Culvert

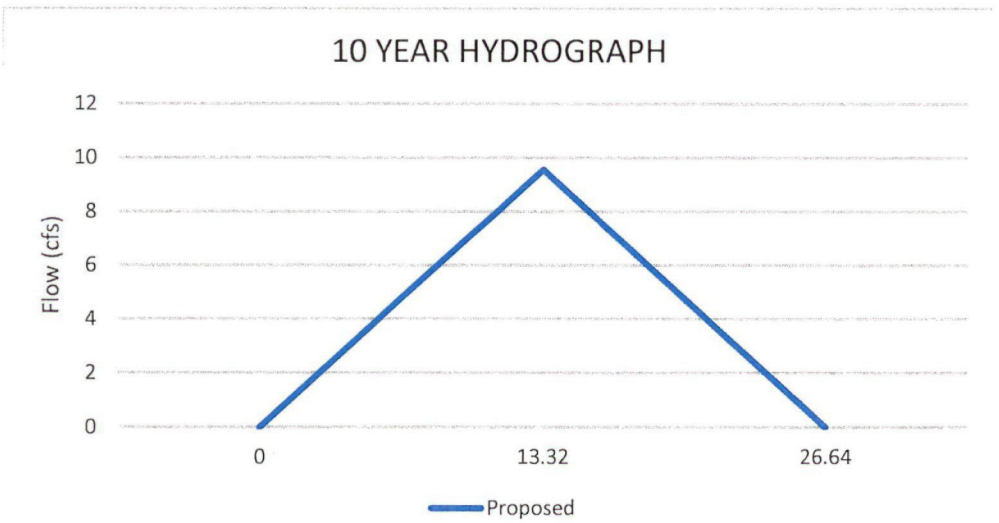
Diameter (in)=	15.00	
n=	0.013	
S=	4.48%	
A=	1.23	sq.ft.
Wet.Per.=	3.93	feet
Hydr. radius=	0.31	feet
Velocity=	11.14	fps
Q=	**13.67**	**cfs**

Required Head:

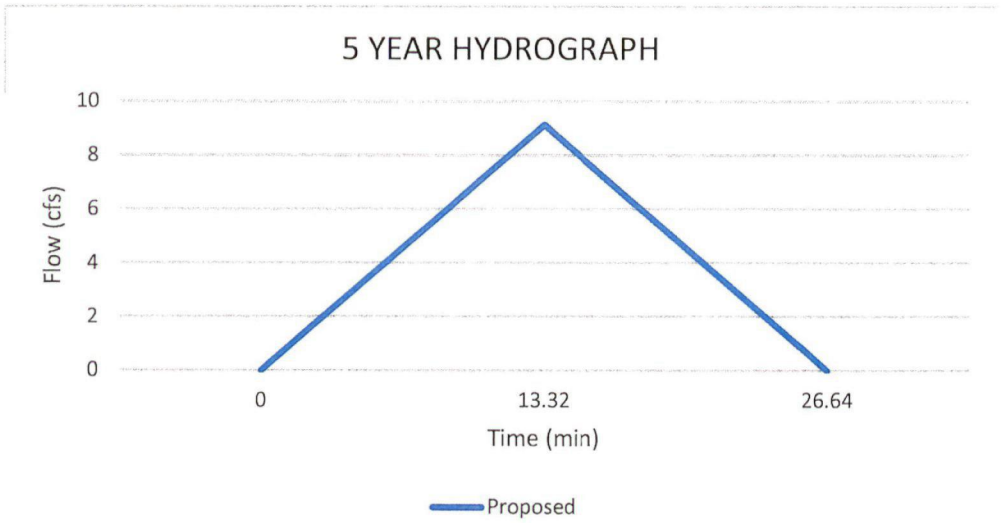
D+1.5*(V^2/2g)=	4.14 ft	D+1.5*(V^2/2g)=	0.00 ft

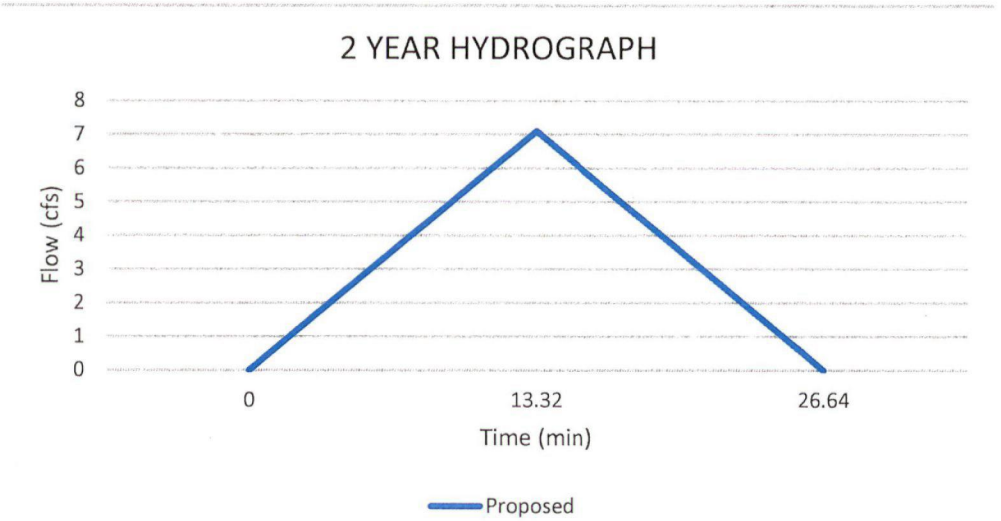
DA-3 Hydrographs





DA-3 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation: DA-4 Proposed
D.A.: 1.480 acres
Weighted C: 0.450

RUNOFF COEFFICIENT C	Acres
Pasture; sandy soil (C=0.25)	0.00
Industrial; heavy (C=0.85)	0.00
Cultivated, heavy (C=0.45)	1.48
TOTAL SITE ACREAGE	1.48

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pastute	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

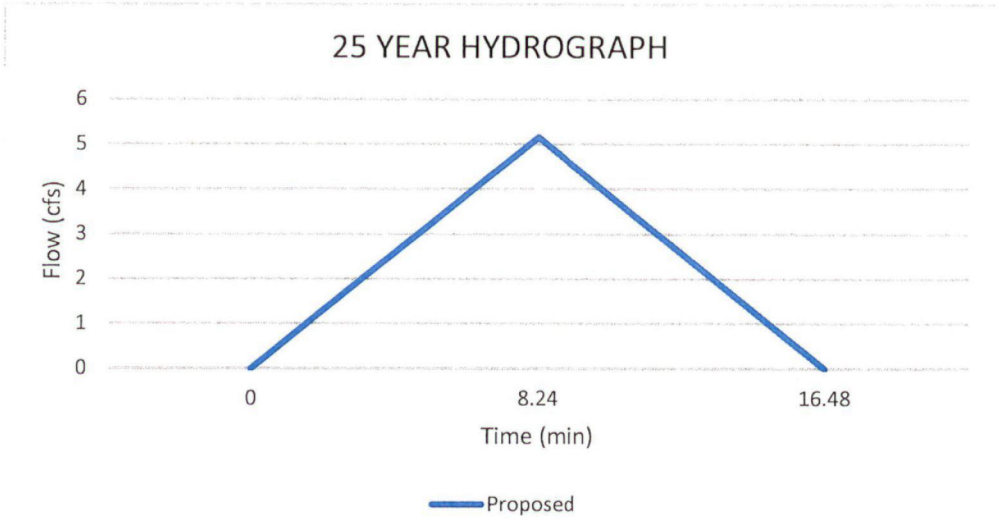
TIME OF CONCENTRATION

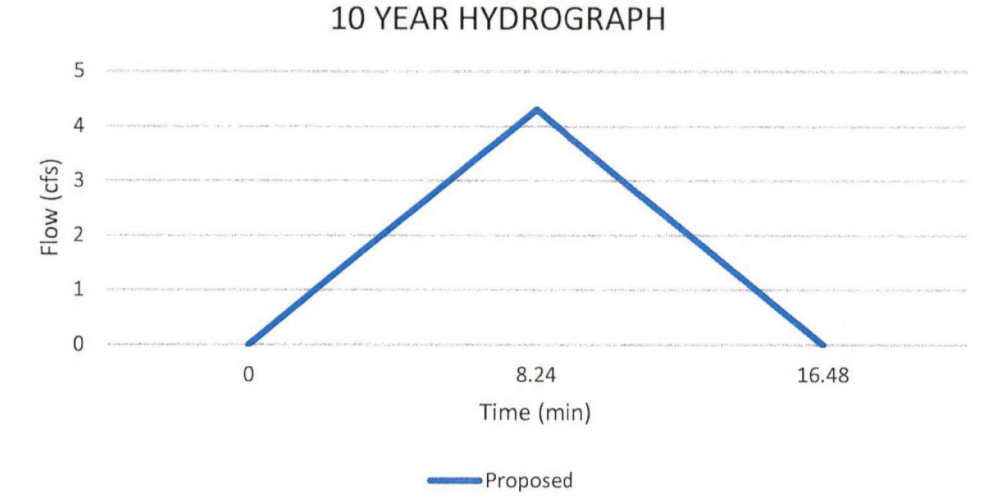
Channel Flow:	Length (ft)	Slope (ft/ft)	k'	Tf	
	250	0.015	0.01252	4.43	
			Total	**8.24**	**min**

RUNOFF CALCULATIONS

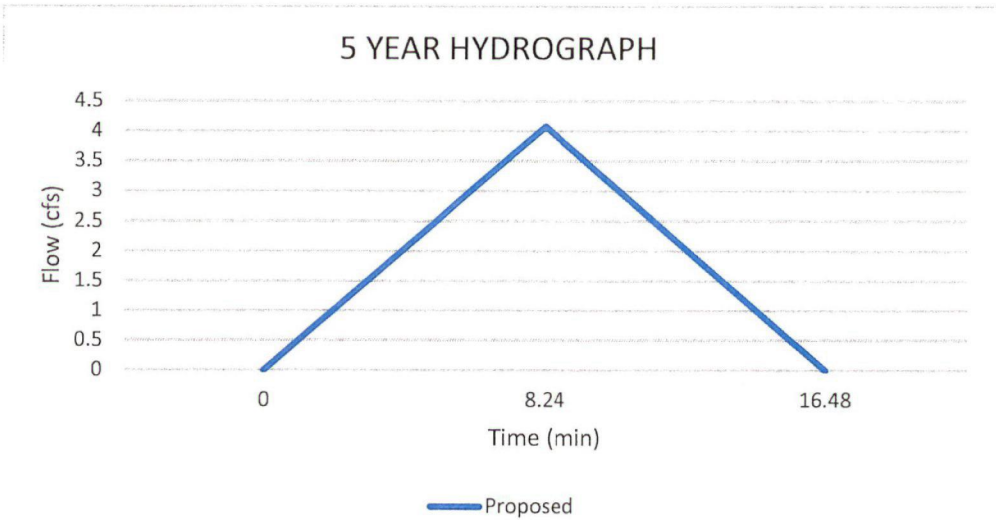
Intensity (in/hr)		Q=CiA (cfs)	
i2=	4.90	Q2=	3.26
i5=	6.13	Q5=	4.08
i10=	6.48	Q10=	4.32
i25=	7.75	**Q25=**	**5.16**

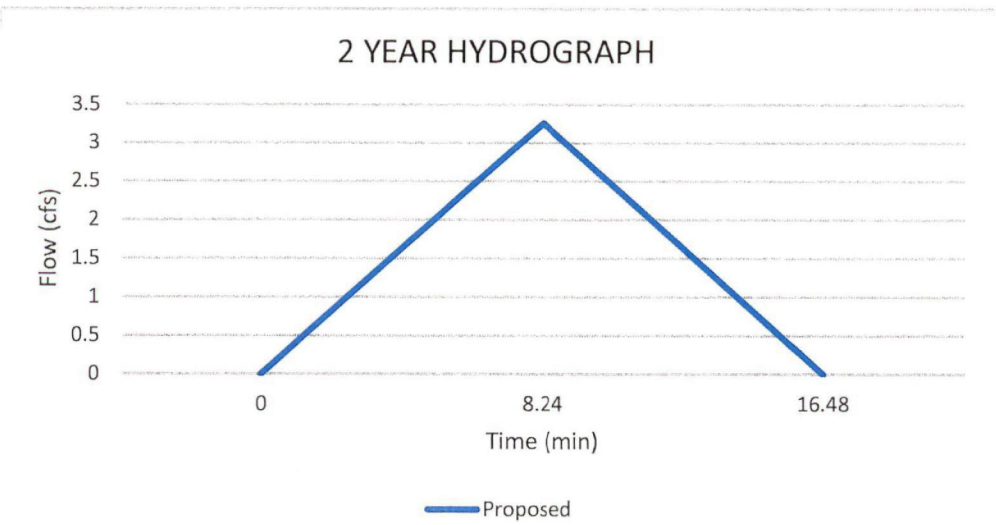
DA-4 Hydrographs





DA-4 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation:	DA-5 Proposed
D.A.:	0.790 acres
Weighted CN:	86
Initial Abstraction (Ia)	0.326

SCS CURVE NUMBER	Acres
Meadow (CN=58)	0.00
Urban; industrial (CN=88)	0.10
Fallow; bare soil (CN=86)	0.69
TOTAL SITE ACREAGE	0.79

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pastute	1.040

24 HOUR RAINFALL	Inches
2 Year	3.5
5 Year	4.8
10 Year	5.8
25 Year	7.5

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	169	0.0060	0.7750	14.39	
			Total	**14.39**	**min**

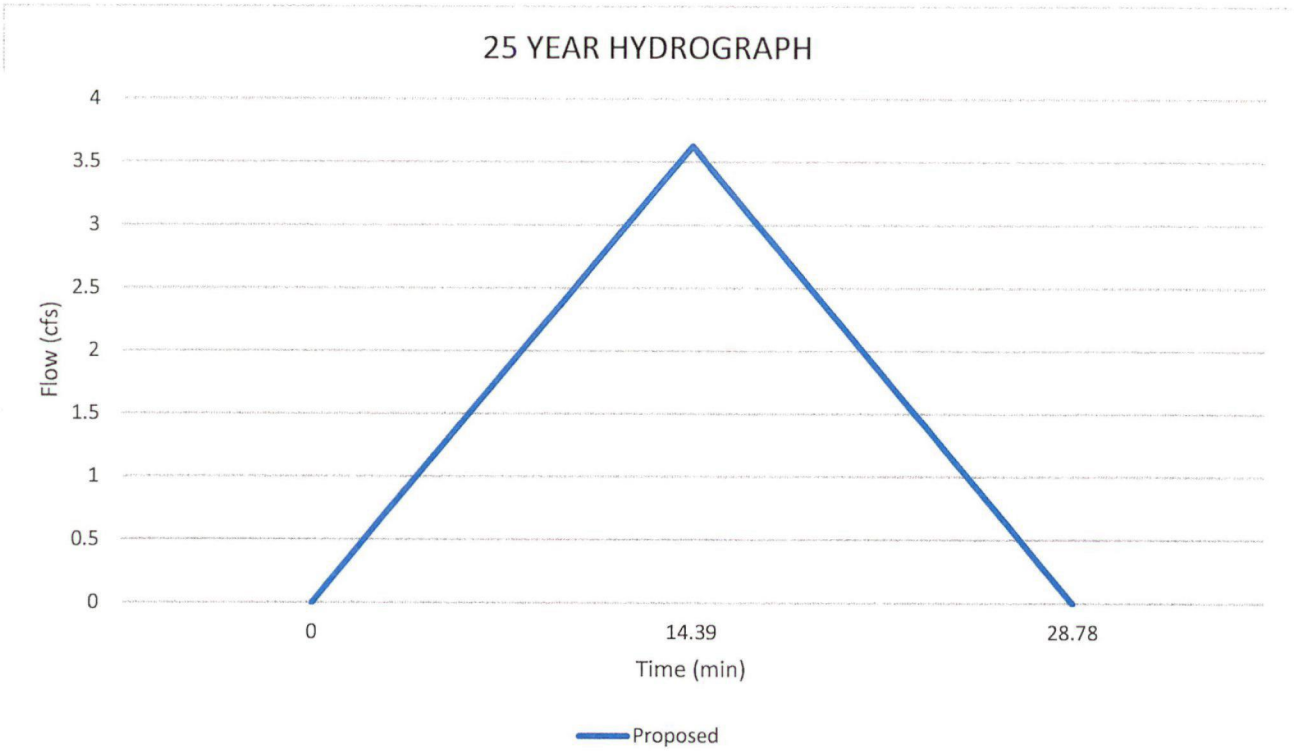
RUNOFF CALCULATIONS

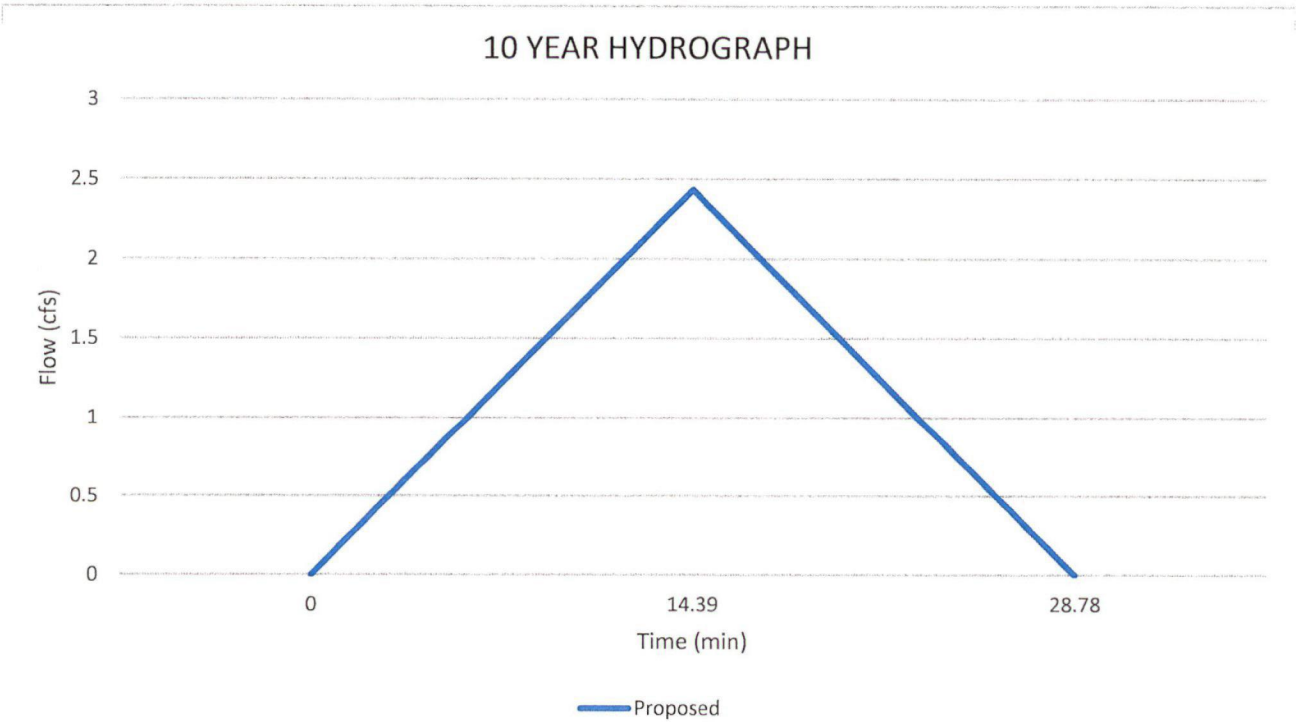
SCS Method	Rainfall	S	Runoff (in)	Ia/P
2 Year	3.5	1.59	2.12	0.09
5 Year	4.8	1.59	3.31	0.07
10 Year	5.8	1.59	4.25	0.06
25 Year	7.5	1.59	5.88	0.04

PEAK DISCHARGE CALCULATIONS

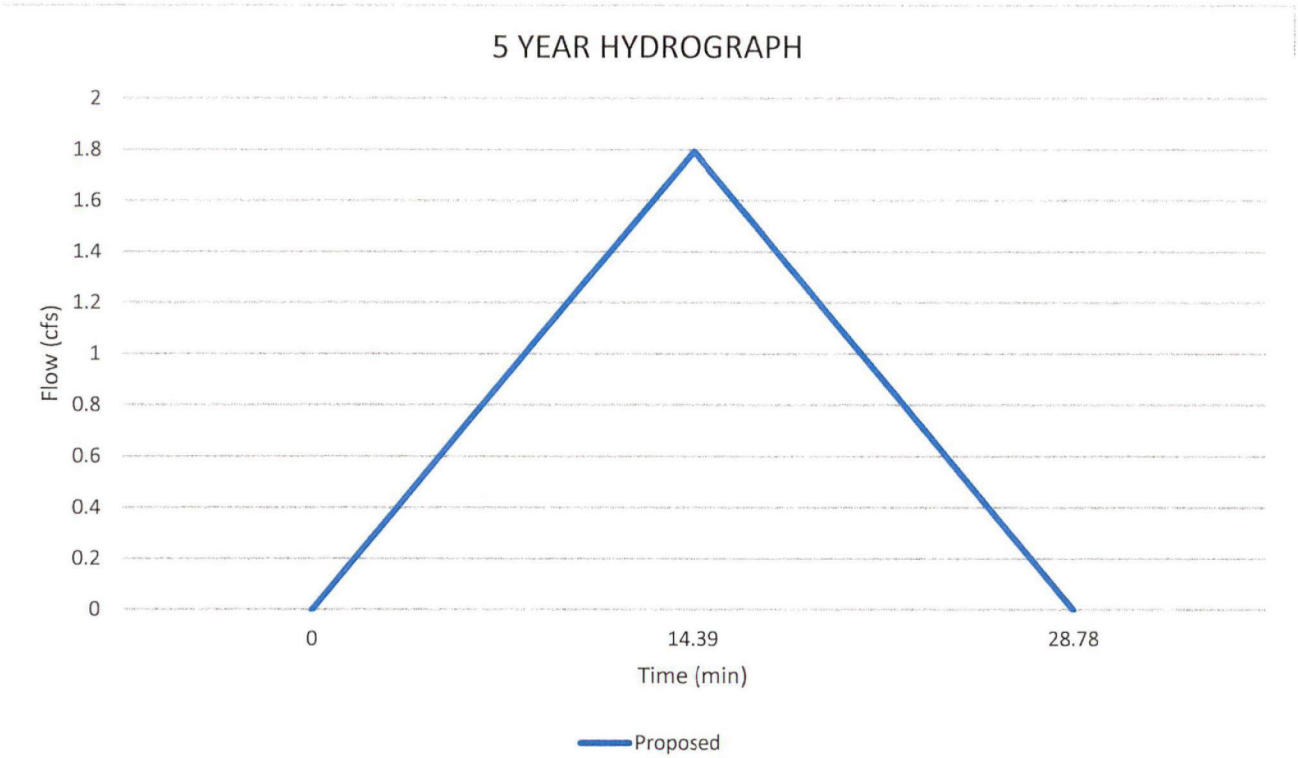
SCS Method	Qu (csm/in)	Area (miles)	Runoff (in)	Fp	Peak (cfs)
2 Year	345	0.001	2.12	1	0.90
5 Year	440	0.001	3.31	1	1.80
10 Year	465	0.001	4.25	1	2.44
25 Year	500	0.001	5.88	1	**3.63**

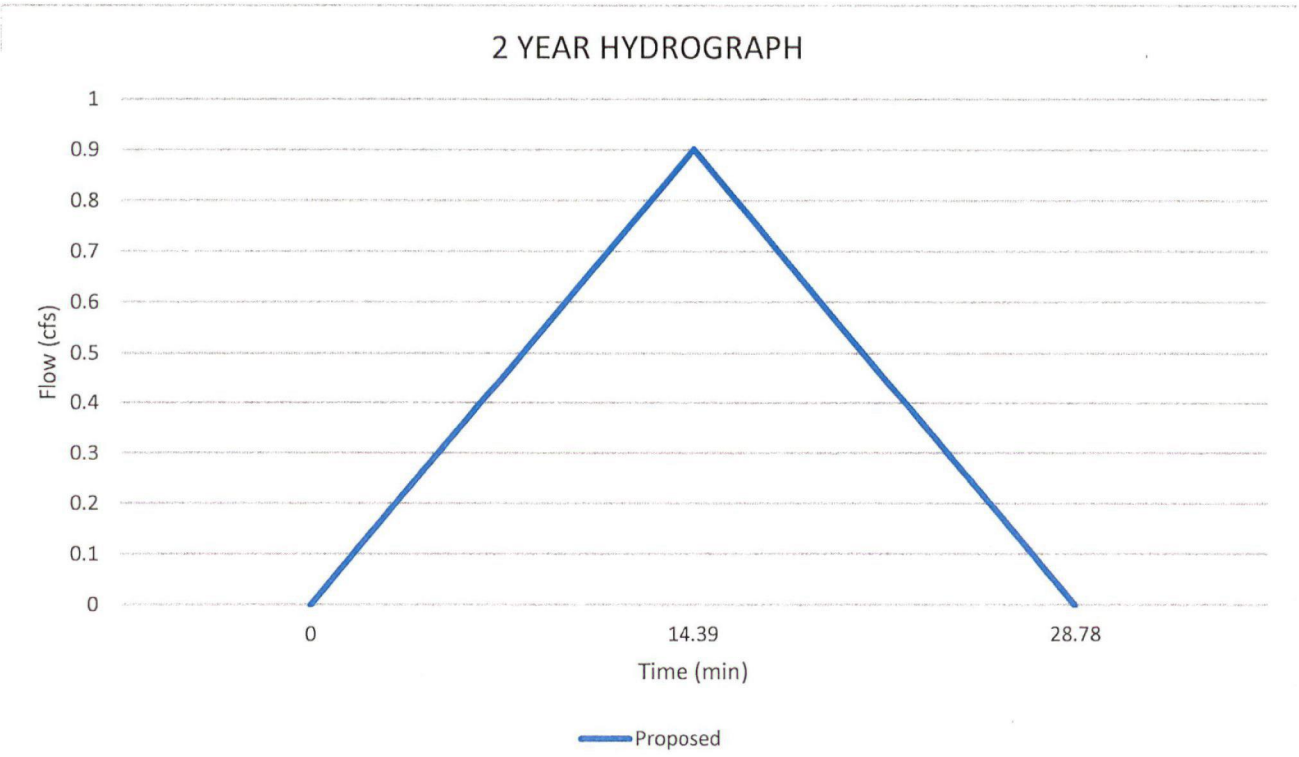
DA-5 Hydrographs





DA-5 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation:	DA-6 Proposed
D.A.:	0.340 acres
Weighted C:	0.850
Weighted CN:	88
Initial Abstraction (Ia)	0.273

RUNOFF COEFFICIENT C	Acres
Pasture; sandy soil (C=0.25)	0.00
Industrial; heavy (C=0.85)	0.34
Cultivated, heavy (C=0.45)	0.00
TOTAL SITE ACREAGE	0.34

RETARDANCE FACTOR K	
Pavement	0.372
Commercial	0.511
Cultivated	0.775
Average Pastute	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

SCS CURVE NUMBER	Acres
Meadow (CN=58)	0.00
Urban; industrial (CN=88)	0.34
Fallow; bare soil (CN=86)	0.00
TOTAL SITE ACREAGE	0.34

24 HOUR RAINFALL	Inches
2 Year	3.5
5 Year	4.8
10 Year	5.8
25 Year	7.5

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	142	0.0050	0.3720	6.72	
			Total	**6.72**	**min**

RUNOFF CALCULATIONS

Rational Method

	Intensity (in/hr)		Q=CiA (cfs)
i2=	5.26	Q2=	1.52
i5=	6.51	Q5=	1.88
i10=	6.92	Q10=	2.00
i25=	8.17	**Q25=**	**2.36**

SCS Method	Rainfall	S	Runoff (in)	Ia/P
2 Year	3.5	1.36	2.27	0.08
5 Year	4.8	1.36	3.48	0.06
10 Year	5.8	1.36	4.43	0.05
25 Year	7.5	1.36	6.08	0.04

PEAK DISCHARGE CALCULATIONS

SCS Method	Qu (csm/in)	Area (miles)	Runoff (in)	Fp	Peak (cfs)
2 Year	1000	0.001	2.27	1	1.21
5 Year	1000	0.001	3.48	1	1.85
10 Year	1000	0.001	4.43	1	2.36
25 Year	1000	0.001	6.08	1	**3.23**

STRUCTURE CAPACITY

Open Channel Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

$Q = 1.486/n * A * R^{2/3} * S^{1/2}$

Transfer Station Ditch:

Height (feet)=	0.67	
Bottom Width (feet)=	3.00	
Top width (feet)=	7.00	
n=	0.013	
S=	1.00%	sq.ft.
A=	3.34	feet
Wet.Per.=	7.22	feet
Hydr. Radius=	0.46	feet
Velocity	**6.83**	**fps**
Q=	**22.79**	**cfs**

Culvert Capacity

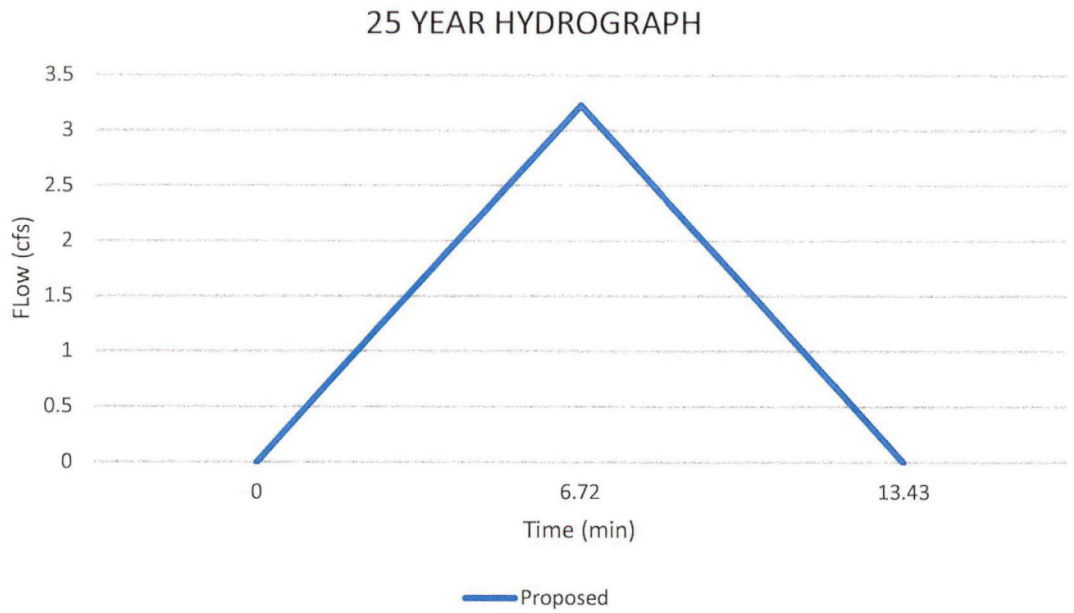
Supporting Calculations

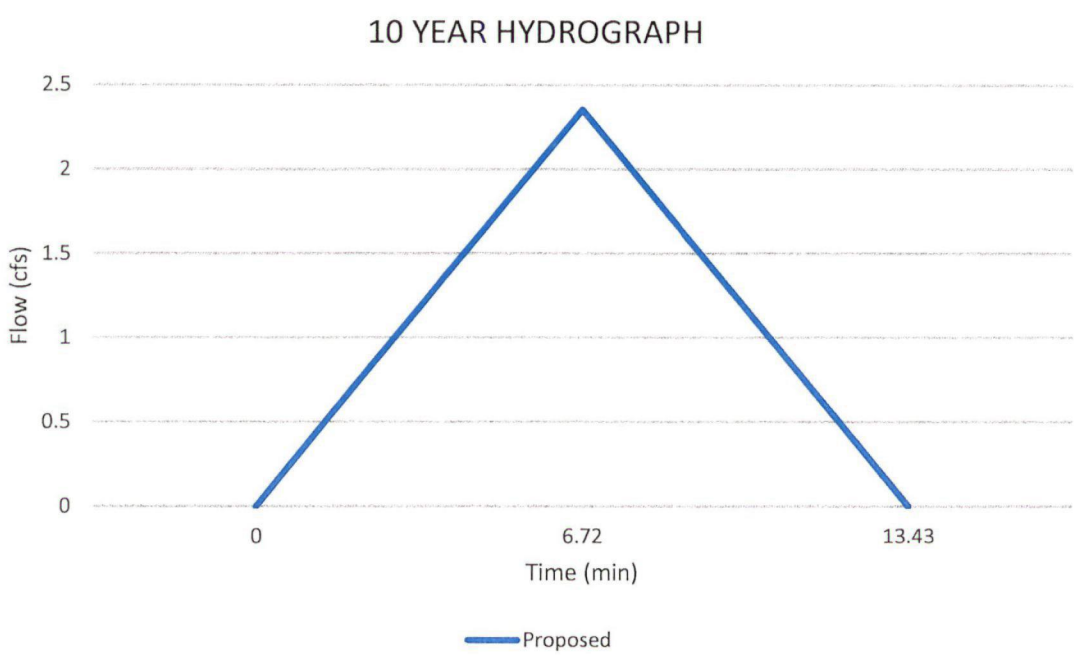
Using Manning's equation to determine adequacy of structure.

$Q = 1.486/n * A * R^{2/3} * S^{1/2}$

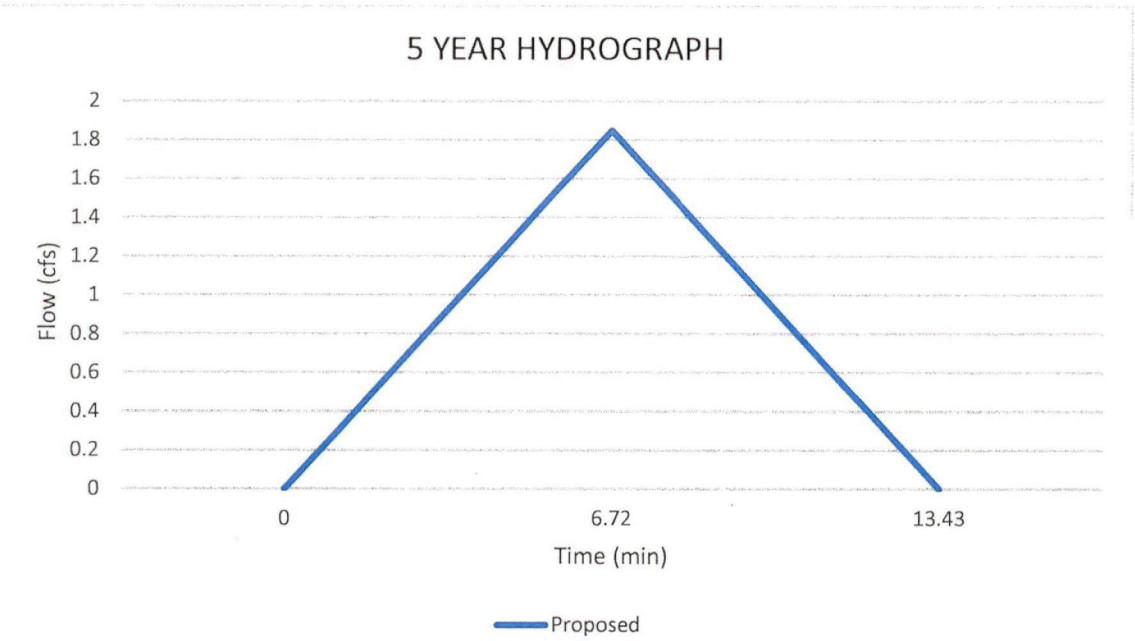
Transfer Station Culvert:			***Transfer Station Pipe:***		
Diameter (in)=	12.00		Diameter (in)=	12.00	
n=	0.013		n=	0.013	
S=	1.00%		S=	15.00%	
A=	0.79	sq.ft.	A=	0.79	sq.ft.
Wet.Per.=	3.14	feet	Wet.Per.=	3.14	feet
Hydr. radius=	0.25	feet	Hydr. radius=	0.25	feet
Velocity=	4.54	fps	Velocity=	17.57	fps
Q=	**3.56**	**cfs**	**Q=**	**13.80**	**cfs**

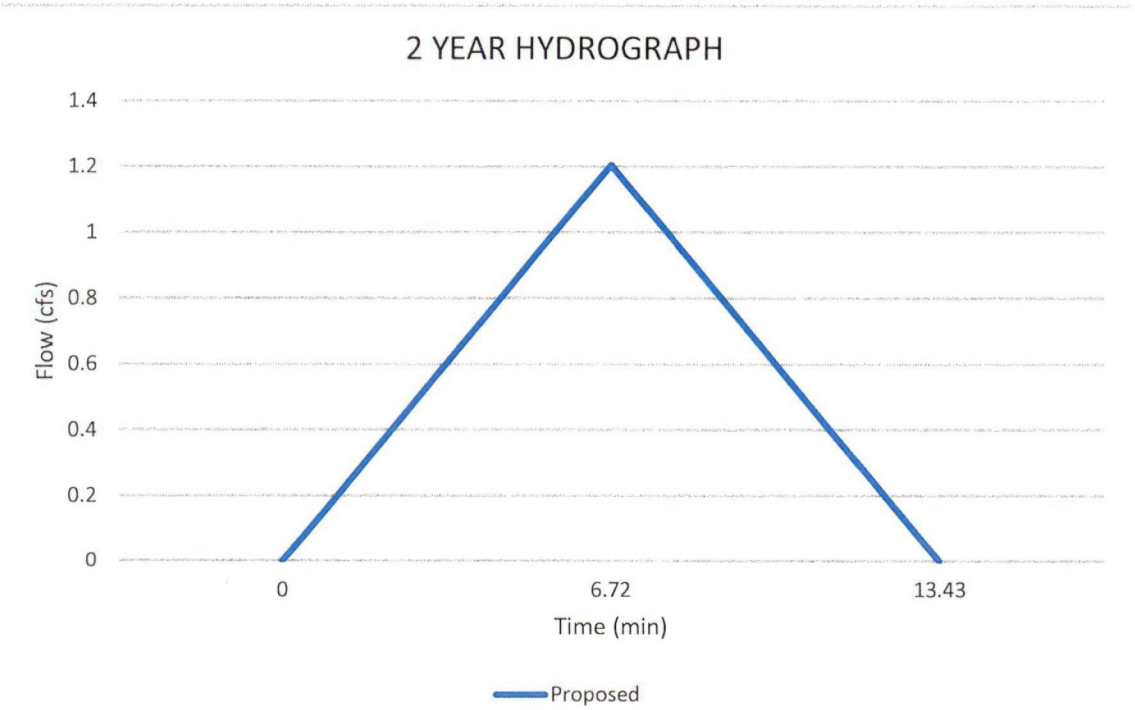
DA-6 Hydrographs





DA-6 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Drainage Area Designation:	DA-7 Proposed
D.A.:	1.490 acres
Weighted C:	0.605
Weighted CN:	87
Initial Abstraction (Ia)	0.299

RUNOFF COEFFICIENT C	Acres
Pasture; sandy soil (C=0.25)	0.00
Industrial; heavy (C=0.85)	1.06
Cultivated, heavy (C=0.45)	0.43
TOTAL SITE ACREAGE	1.49

RETARDANCE FACTOR K	
Pavement	0.372
Commercial	0.511
Cultivated	0.775
Average Pastute	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

SCS CURVE NUMBER	Acres
Meadow (CN=58)	0.00
Urban; industrial (CN=88)	1.06
Fallow; bare soil (CN=86)	0.43
TOTAL SITE ACREAGE	1.49

24 HOUR RAINFALL	Inches
2 Year	3.5
5 Year	4.8
10 Year	5.8
25 Year	7.5

TIME OF CONCENTRATION

Overland Flow:	Length (ft)	Slope (ft/ft)	k	To	
	324	0.0470	0.7750	12.13	
			Total	**12.13**	**min**

RUNOFF CALCULATIONS

Rational Method

	Intensity (in/hr)		Q=CiA (cfs)
i2=	4.18	Q2=	3.77
i5=	5.34	Q5=	4.81
i10=	5.60	Q10=	5.05
i25=	6.86	**Q25=**	**6.18**

SCS Method	Rainfall	S	Runoff (in)	Ia/P
2 Year	3.5	1.44	2.22	0.09
5 Year	4.8	1.44	3.42	0.06
10 Year	5.8	1.44	4.37	0.05
25 Year	7.5	1.44	6.01	0.04

PEAK DISCHARGE CALCULATIONS

SCS Method	Qu (csm/in)	Area (miles)	Runoff (in)	Fp	Peak (cfs)
2 Year	800	0.002	2.22	1	4.13
5 Year	860	0.002	3.42	1	6.85
10 Year	900	0.002	4.37	1	9.16
25 Year	920	0.002	6.01	1	**12.88**

STRUCTURE CAPACITY

Open Channel Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

Transfer Station Ditch:

Height (feet)=	0.67	
Bottom Width (feet)=	3.00	
Top width (feet)=	7.00	
n=	0.023	
S=	1.00%	sq.ft.
A=	3.34	feet
Wet.Per.=	7.22	feet
Hydr. Radius=	0.46	feet
Velocity	**3.86**	**fps**
Q=	**12.88**	**cfs**

Culvert Capacity

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

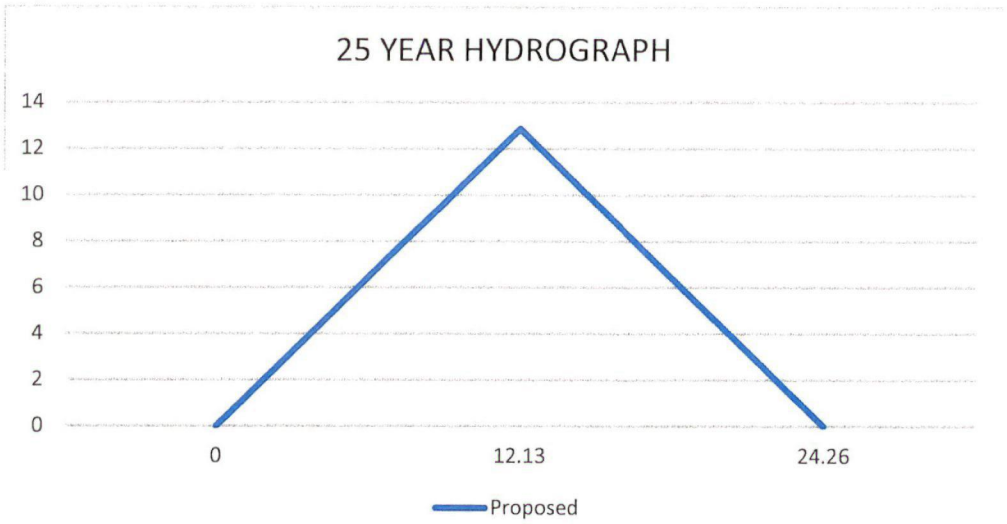
Q = 1.486/n * A * R ^2/3 * S ^1/2

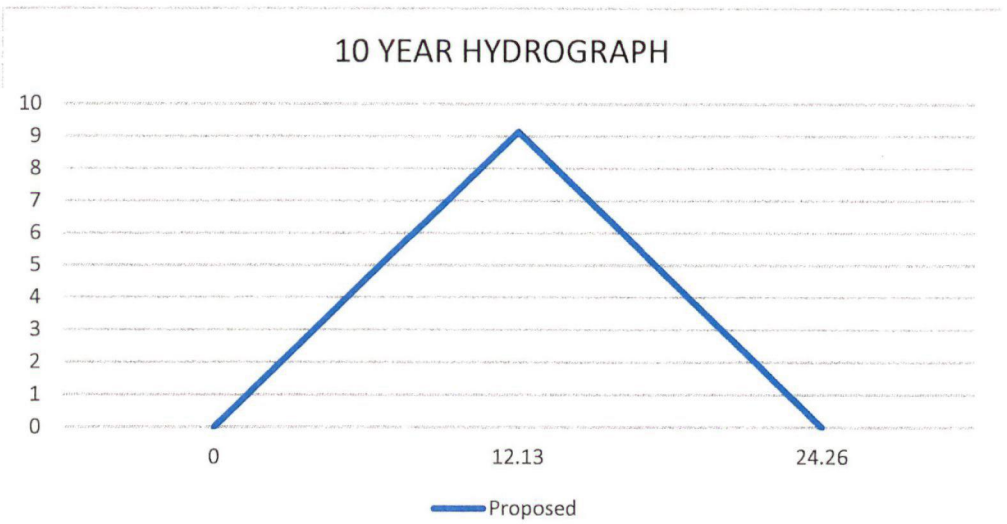
Transfer Station Culvert:			***Transfer Station Pipe:***		
Diameter (in)=	12.00	RCP	Diameter (in)=	12.00	
n=	0.013		n=	0.013	
S=	1.00%		S=	15.00%	
A=	0.79	sq.ft.	A=	0.79	sq.ft.
Wet.Per.=	3.14	feet	Wet.Per.=	3.14	feet
Hydr. radius=	0.25	feet	Hydr. radius=	0.25	feet
Velocity=	4.54	fps	Velocity=	17.57	fps
Q=	**3.56**	**cfs**	**Q=**	**13.80**	**cfs**

Required Head:

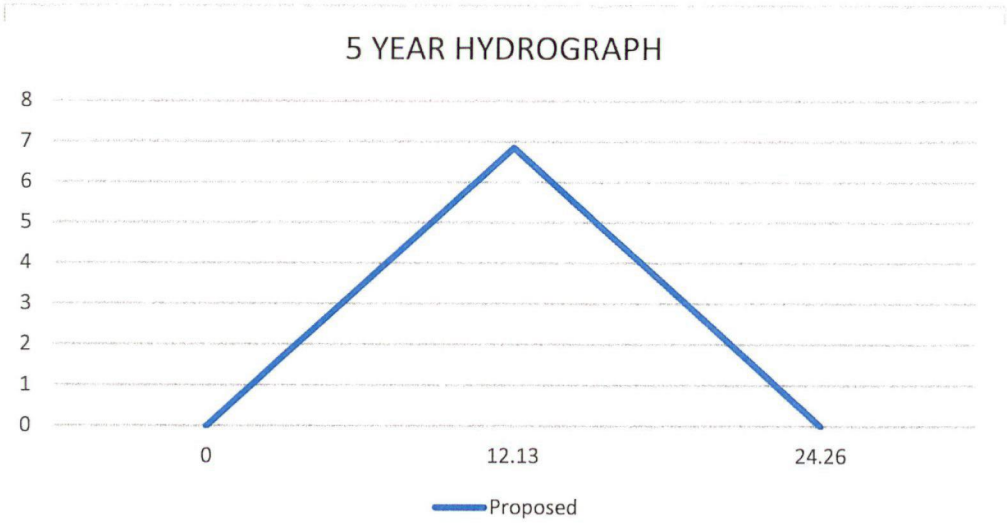
D+1.5*(V^2/2g)=	1.48	ft	D+1.5*(V^2/2g)=	8.19	ft

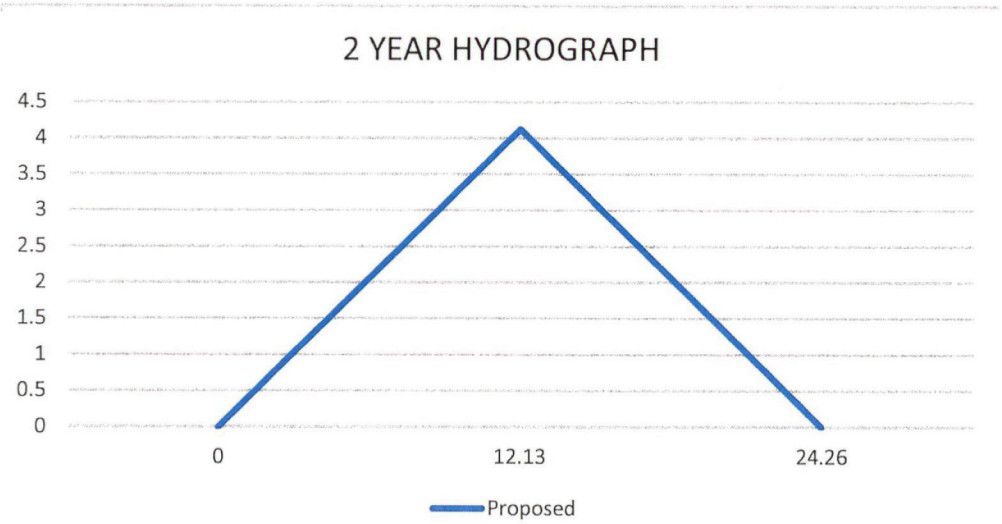
DA-7 Hydrographs





DA-7 Hydrographs





DRAINAGE CALCULATIONS

Ada LF Transfer Station

Pond Designation	West Pond
Contributing Drainage Areas	DA-2
Total Contributing Acreage	3.620
Weighted CN:	69

SCS CURVE NUMBER	Acres
Meadow (CN=58)	2.25
Urban; industrial (CN=88)	0.91
Fallow; bare soil (CN=86)	0.46
TOTAL SITE ACREAGE	3.62

25 YEAR 24 HOUR RAINFALL (in)	
Pontotoc County	7.5

STORAGE CALCULATIONS

RATIONAL METHOD	Q in	Q out	Time	Q (ft^3)	Q/3
	20.56	20.56	22.835	48792	16264

POND VOLUME

Length	Width (ft)	Area (ft^2)	Depth (ft)	Elevation (ft)	Total Volume (ft^3)	
200	70	14000	10	1004.45	71000	
194	64	12416	9	1003.45	57798	
188	58	10904	8	1002.45	46144	
182	52	9464	7	1001.45	35966	
176	46	8096	6	1000.45	27192	
170	40	6800	5	999.45	19750	998.89
164	34	5576	4	998.45	13568	
158	28	4424	3	997.45	8574	
152	22	3344	2	996.45	4696	
146	16	2336	1	995.45	1862	
140	10	1400	0	994.45	0	

STRUCTURE CAPACITY

Outlet Structure

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

Weir - Completely full			***Weir Partially Full - Up to 25 YR WSEL***		
Top Elevation (feet)=	1004.450		25 Year WSEL (feet)=	998.89	
Crest Elevation (feet)=	998.33		Crest Elevation (feet)=	998.33	
Height (feet)=	6.12		Height (feet)=	0.56	
Bottom Width (feet)=	3.00		Bottom Width (feet)=	3.00	
Top width (feet)=	39.72		Top width (feet)=	6.34	
n=	0.023		n=	0.023	
S=	1.00%		S=	1.00%	
A=	130.72	sq.ft.	A=	2.60	sq.ft.
Wet.Per.=	41.71	feet	Wet.Per.=	6.52	feet
Hydr. Radius=	3.13	feet	Hydr. Radius=	0.40	feet
Velocity=	**13.84**	**fps**	**Velocity=**	**3.50**	**fps**
Q=	**1808.89**	**cfs**	**Q=**	**9.08**	**cfs**
Required Head:					
D+1.5*(V^2/2g)=	4.97	ft	D+1.5*(V^2/2g)=	0.33	ft

Emergency Overflow Weir **Outlet Pipe - Installed with Isolation Valve**

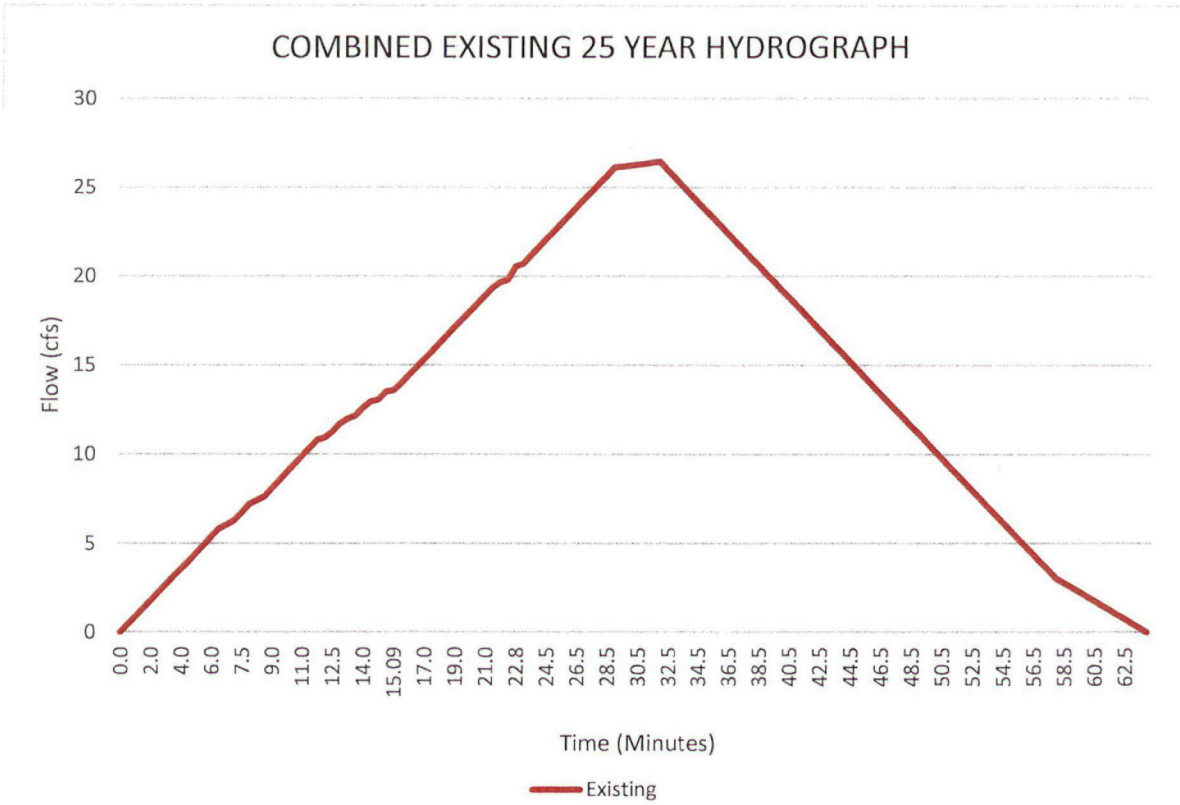
Supporting Calculations

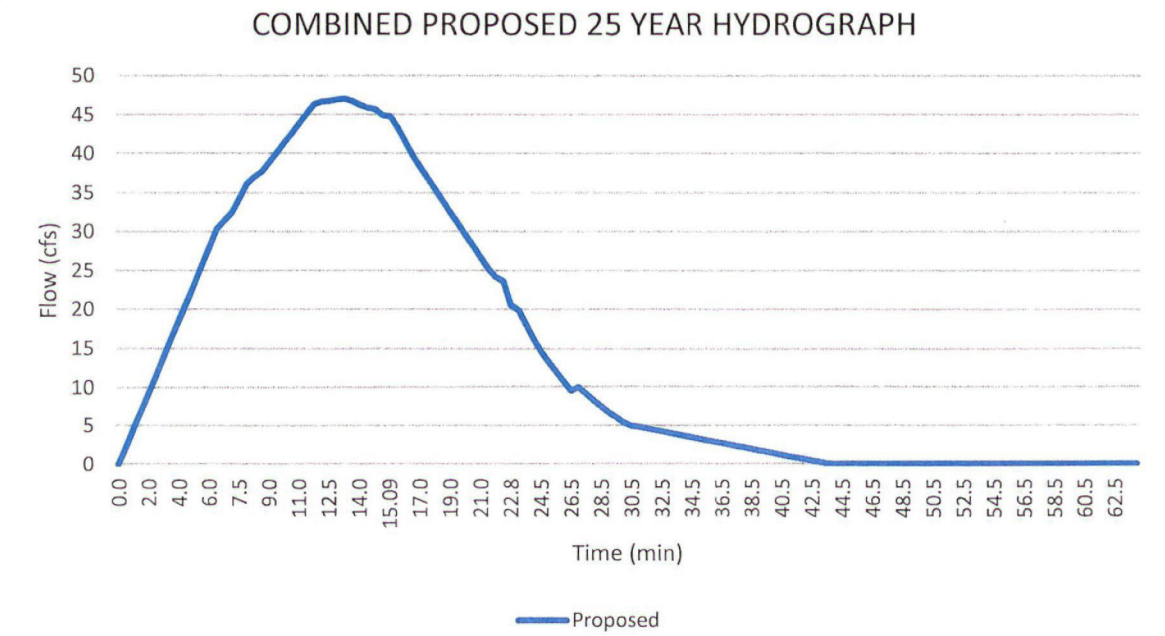
Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

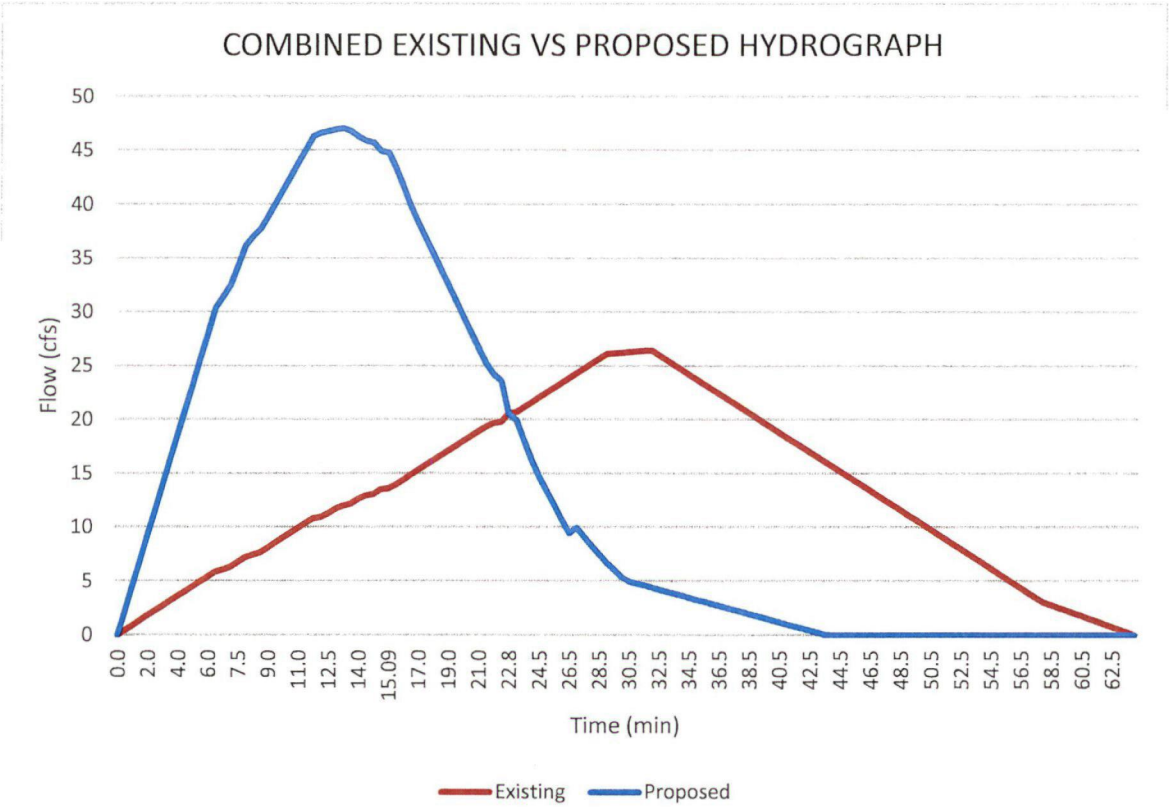
Weir - Completely full			***Pipe - Completely Full***		
Height (feet)=	1.00		Diameter (in)=	12.00	
Bottom Width (feet)=	5.00		n=	0.013	
Top width (feet)=	11.00		S=	1%	
n=	0.023		A=	0.79	sq.ft.
S=	1.00%		Wet.Per.=	3.14	feet
A=	8.00	sq.ft.	Hydr. radius=	0.25	feet
Wet.Per.=	11.32	feet	Velocity=	4.54	fps
Hydr. Radius=	0.71	feet	**Q=**	**3.56**	cfs
Velocity	**5.12**	**fps**	Time to empty=	76	min
Capacity **Q=**	**41.00**	**cfs**			
Actual **Q=**	**8.31**	**cfs**			

Storage Graphs





Storage Graphs



DRAINAGE CALCULATIONS

Ada LF Transfer Station

Pond Designation	South Pond
Contributing Drainage Areas	DA-1, DA-3, DA-4, DA-6
Total Contributing Acreage	6.860
Weighted CN:	87

SCS CURVE NUMBER	Acres
Meadow (CN=58)	0.00
Urban; industrial (CN=88)	5.04
Fallow; bare soil (CN=86)	1.82
TOTAL SITE ACREAGE	6.86

25 YEAR 24 HOUR RAINFALL (in)	
Pontotoc County	7.5

RUNOFF CALCULATIONS

RATIONAL METHOD	Q in	Q out	Time (s)	Q (ft^3)	2Q/3
	20.56	20.56	22.835	48792	32528

POND VOLUME

Length (ft)	Width (ft)	Area (ft^2)	Depth (ft)	Elevation (ft)	Total Volume (ft^3)	WSEL
299	100	29900	14	995	**205030**	
293	94	27542	13	994	**177320**	
287	88	25256	12	993	**151908**	
281	82	23042	11	992	**128722**	
275	76	20900	10	991	**107690**	
269	70	18830	9	990	**88740**	
263	64	16832	8	989	**71800**	
257	58	14906	7	988	**56798**	
251	52	13052	6	987	**43662**	986.02
245	46	11270	5	986	**32320**	
239	40	9560	4	985	**22700**	
233	34	7922	3	984	**14730**	
221	22	4862	2	983	**6904**	
215	16	3440	1	982	**2759**	
209	10	2090	0	981	**0**	

STRUCTURE CAPACITY

Outlet Structure

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

Weir - Completely full			***Weir Partially Full - Up to 25 YR WSEL***		
Top Elevation (feet)=	995.000		25 Year WSEL (feet)=	986.018	
Crest Elevation (feet)=	985.667		Crest Elevation (feet)=	985.667	
Height (feet)=	9.33		Height (feet)=	0.35	
Bottom Width (feet)=	9.00		Bottom Width (feet)=	9.00	
Top width (feet)=	65.00		Top width (feet)=	11.11	
n=	0.023		n=	0.023	
S=	1.00%		S=	1.00%	
A=	345.31	sq.ft.	A=	3.53	sq.ft.
Wet.Per.=	68.03	feet	Wet.Per.=	11.22	feet
Hydr. Radius=	5.08	feet	Hydr. Radius=	0.31	feet
Velocity	**19.08**	**fps**	**Velocity**	**2.99**	**fps**
Q=	**6589.54**	**cfs**	**Q=**	**10.56**	**cfs**
Required Head:					
D+1.5*(V^2/2g)=	1.38	ft	D+1.5*(V^2/2g)=	0.24	ft

Emergency Overflow Weir **Outlet Pipe - Installed with Isolation Valve**

Supporting Calculations

Using Manning's equation to determine adequacy of structure.

Q = 1.486/n * A * R ^2/3 * S ^1/2

Weir - Completely full			***Pipe - Completely Full***		
Height (feet)=	1.00		Diameter (in)=	12.00	
Bottom Width (feet)=	9.00		n=	0.013	
Top width (feet)=	15.00		S=	1%	
n=	0.03		A=	0.79	sq.ft.
S=	1.00%		Wet.Per.=	3.14	feet
A=	12.00	sq.ft.	Hydr. radius=	0.25	feet
Wet.Per.=	15.32	feet	Velocity=	4.54	fps
Hydr. Radius=	0.78	feet	**Q=**	**3.56**	cfs
Velocity	**4.21**	**fps**	Time to empty=	152	min
Capacity **Q=**	**50.50**	**cfs**			
Actual **Q=**	**34.27**	**cfs**			

APPENDIX A
STORMWATER DESIGN
RUNOFF COEFFICIENTS

Type of Drainage Area	Runoff Coefficient (C)
Business:	
Downtown areas	0.70 – 0.95
Neighborhood areas	0.50 – 0.70
Residential:	
Single-family areas	0.30 – 0.50
Multi-units, detached	0.40 – 0.60
Multi-units, attached	0.60 – 0.75
Suburban	0.25 – 0.40
Apartment dwelling areas	0.50 – 0.70
Industrial:	
Light areas	0.50 – 0.80
Heavy areas	0.60 – 0.90
Parks, cemeteries	0.10 – 0.25
Playground	0.20 – 0.40
Railroad yard areas	0.20 – 0.40
Unimproved areas	0.10 – 0.30
Lawns:	
Sandy soil, flat (< 2%)	0.05 – 0.10
Sandy soil, average (2% to 7%)	0.10 – 0.15
Sandy soil, steep (> 7%)	0.15 – 0.20
Heavy soil, flat (< 2%)	0.13 – 0.17
Heavy soil, average (2% to 7%)	0.18 – 0.22
Heavy soil, steep (> 7%)	0.25 – 0.35
Agricultural land:	
Bare, packed soil, smooth	0.30 – 0.60
Bare, packed soil, rough	0.20 – 0.50
Cultivated rows:	
Heavy soil, no crop	0.30 – 0.60
Heavy soil, with crop	0.20 – 0.50
Sandy soil, no crop	0.20 – 0.40
Sandy soil, with crop	0.10 – 0.25
Pasture:	
Heavy soil	0.15 – 0.45
Sandy soil	0.05 – 0.25
Woodland	0.05 – 0.25
Streets:	
Asphalt	0.70 – 0.95
Concrete	0.80 – 0.95
Brick	0.70 – 0.85
Drives and walks	0.75 – 0.85
Roofs	0.75 – 0.95

Source: FHWA HDS 2 (2)

Note: Use lower values for large areas; use higher values for steep slope.

Figure 7.6-A — RUNOFF COEFFICIENTS FOR THE RATIONAL EQUATION

APPENDIX B
STORMWATER DESIGN
IDF CURVE DATA

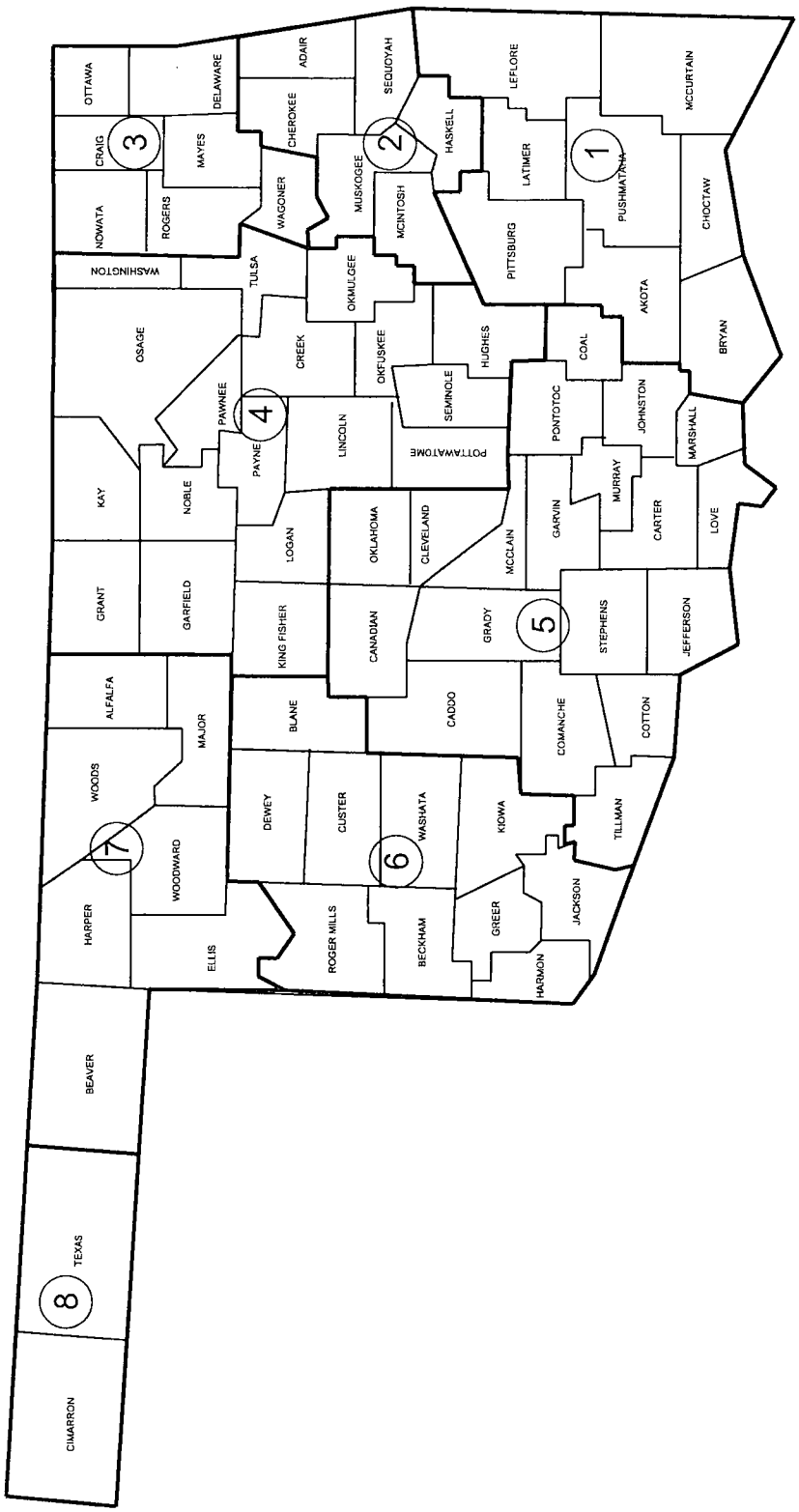
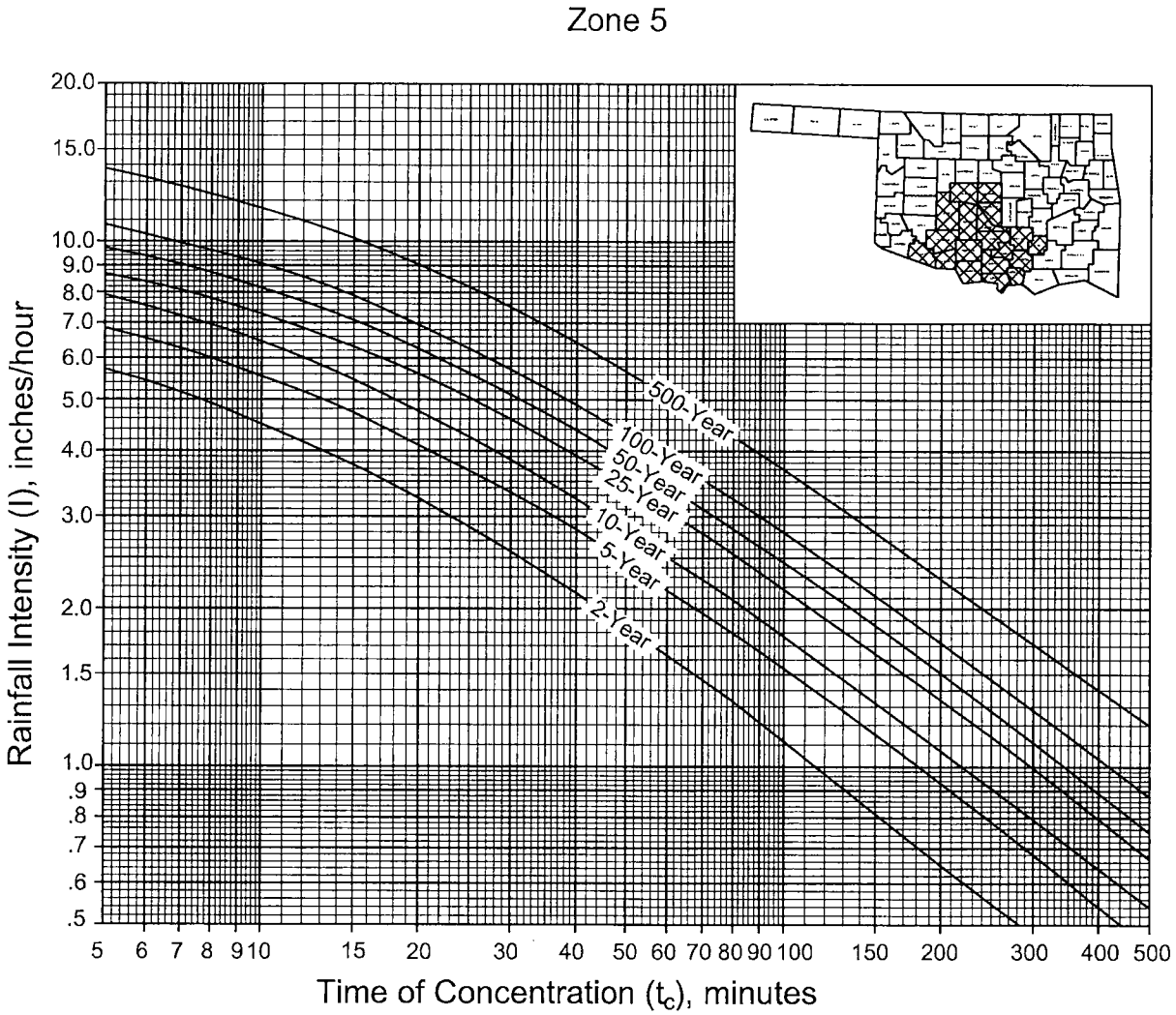


Figure 7.6-G — IDF CURVE ZONES IN OKLAHOMA



Source: (4)

Figure 7.6-L — ZONE 5 IDF CURVE (Caddo, Canadian, Carter, Cleveland, Coal, Comanche, Cotton, Garvin, Grady, Jefferson, Johnston, Love, Marshall, McClain, Murray, Oklahoma, Pontotoc, Stephens and Tillman Counties)

Zone	Values	2-year	5-year	10-year	25-year	50-year	100-year	500-year
1	a	43	47	58	70	77	91	126
	b	9	9	10	10	11	12	13
	c	0.76	0.73	0.74	0.74	0.74	0.75	0.76
2	a	42	45	49	67	70	83	120
	b	8	8	8	10	10	11	11
	c	0.78	0.74	0.73	0.75	0.74	0.75	0.78
3	a	41	45	53	71	91	126	169
	b	8	8	9	11	13	16	16
	c	0.77	0.74	0.74	0.76	0.78	0.82	0.83
4	a	46	59	69	81	106	116	153
	b	10	11	12	12	15	15	15
	c	0.79	0.78	0.78	0.78	0.80	0.80	0.80
5	a	53	64	74	93	104	108	130
	b	10	12	12	15	15	15	15
	c	0.82	0.79	0.79	0.79	0.79	0.77	0.75
6	a	40	53	67	81	88	104	148
	b	7	9	11	12	12	13	15
	c	0.79	0.78	0.79	0.79	0.78	0.79	0.80
7	a	44	59	75	90	98	110	129
	b	7	9	11	12	12	13	12
	c	0.83	0.82	0.83	0.83	0.82	0.82	0.80
8	a	64	97	113	140	160	205	240
	b	12	15	15	15	15	18	18
	c	0.93	0.93	0.93	0.93	0.93	0.94	0.92

Source: (4)

Figure 7.6-P — IDF CURVE COEFFICIENTS for $I = a/(t_c + b)^c$

APPENDIX C
STORMWATER DESIGN
RAINFALL DATA

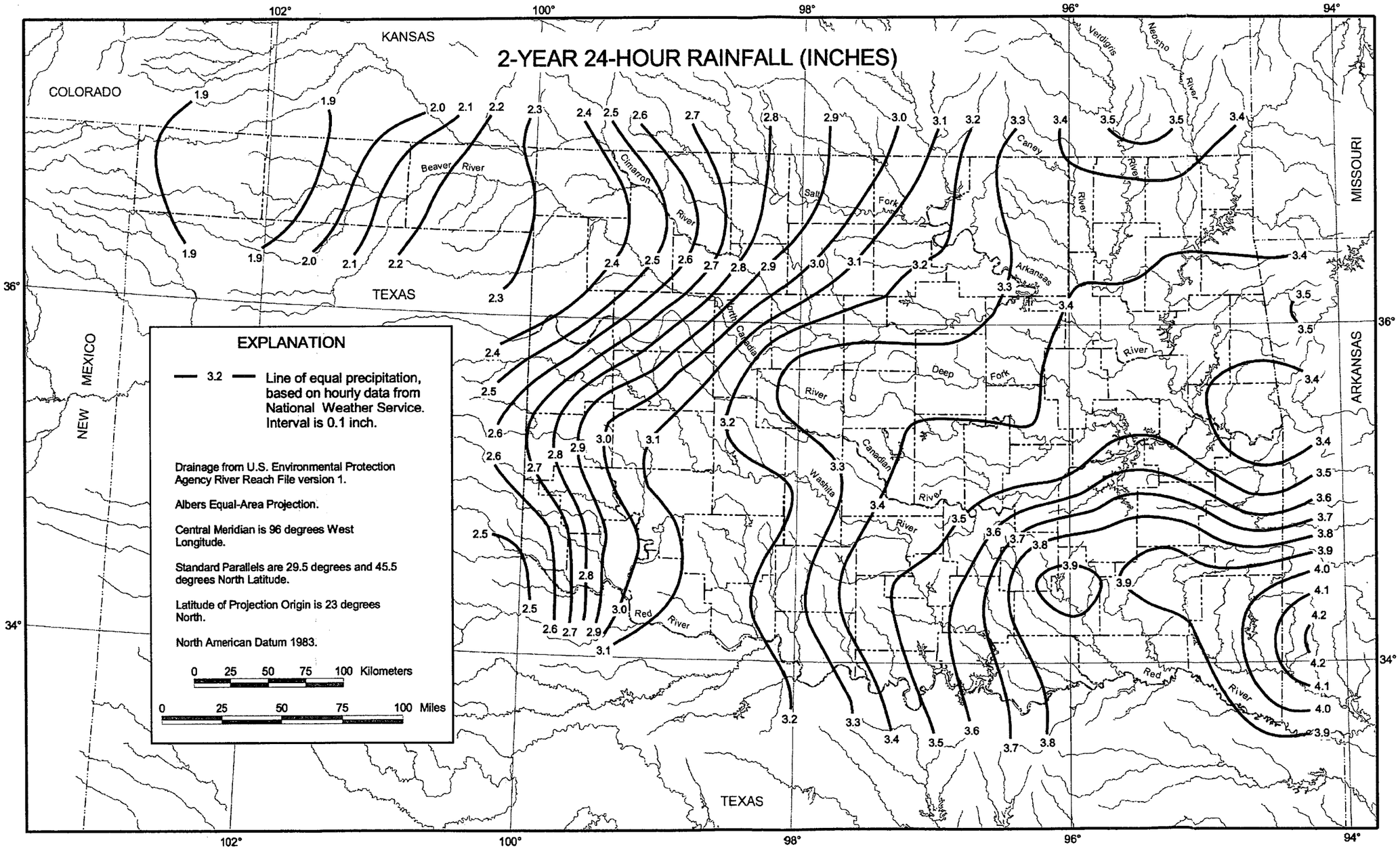


Figure 65. Depth of 2-year storm for 24-hour duration in Oklahoma.

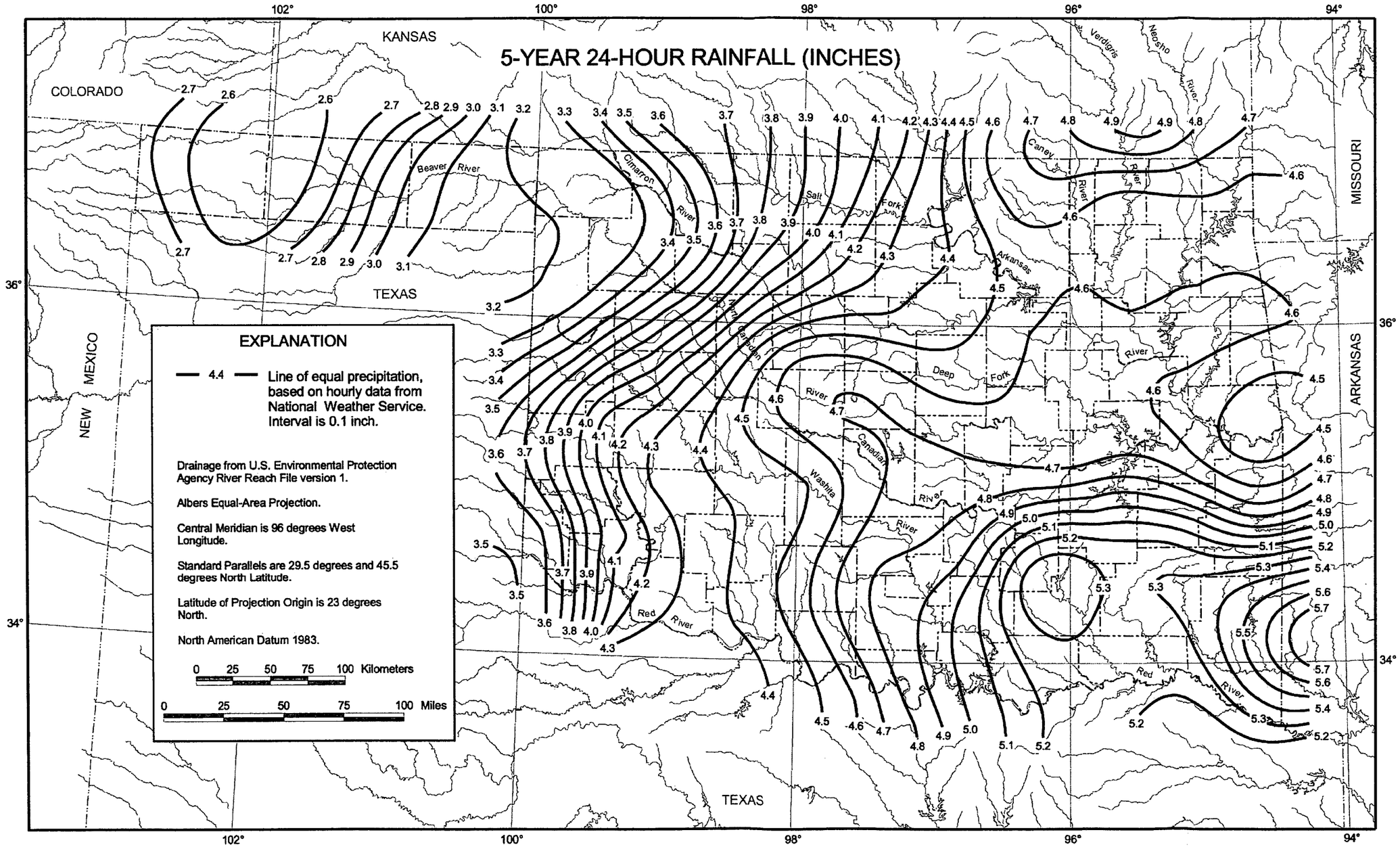


Figure 66. Depth of 5-year storm for 24-hour duration in Oklahoma.

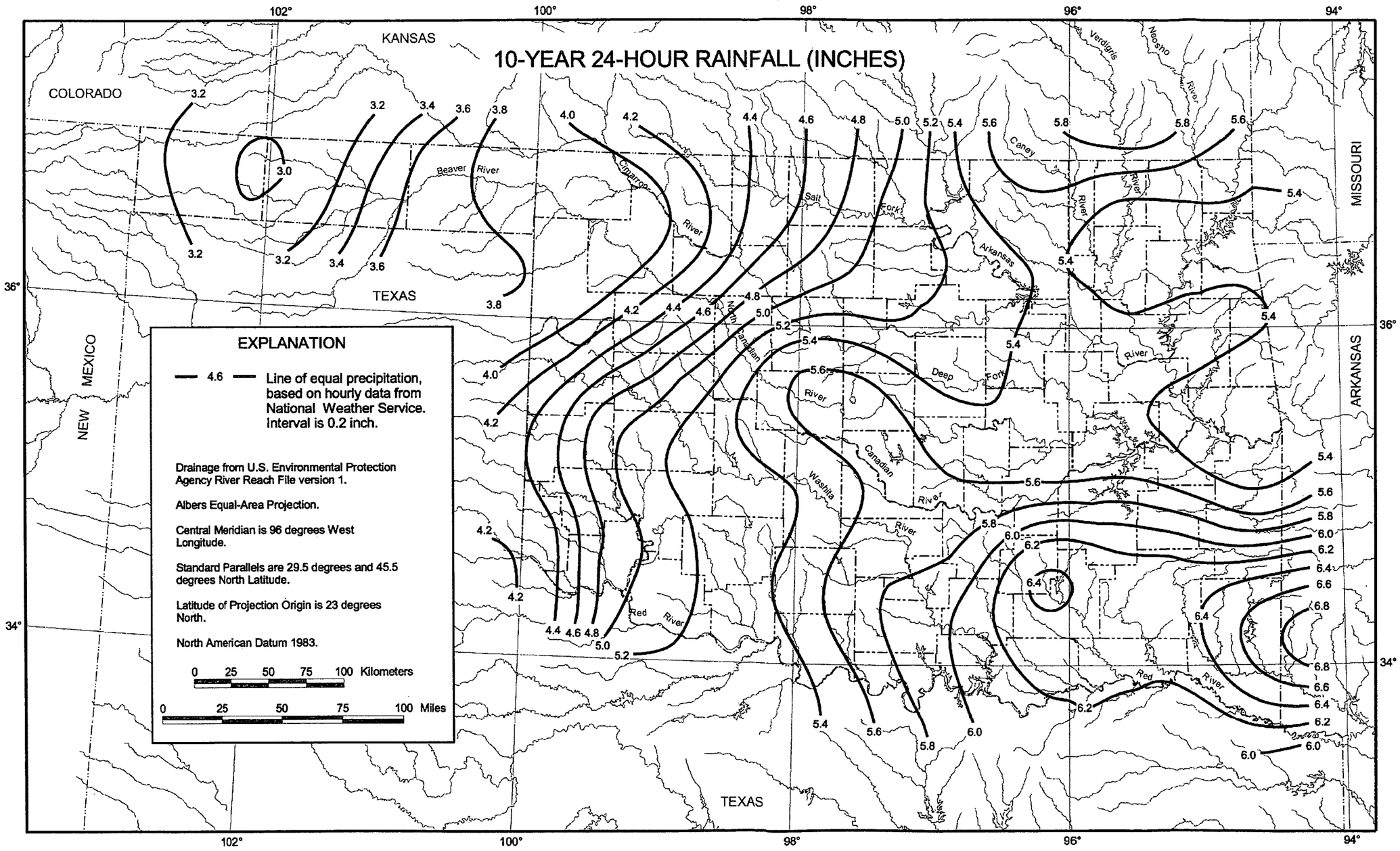


Figure 67. Depth of 10-year storm for 24-hour duration in Oklahoma.

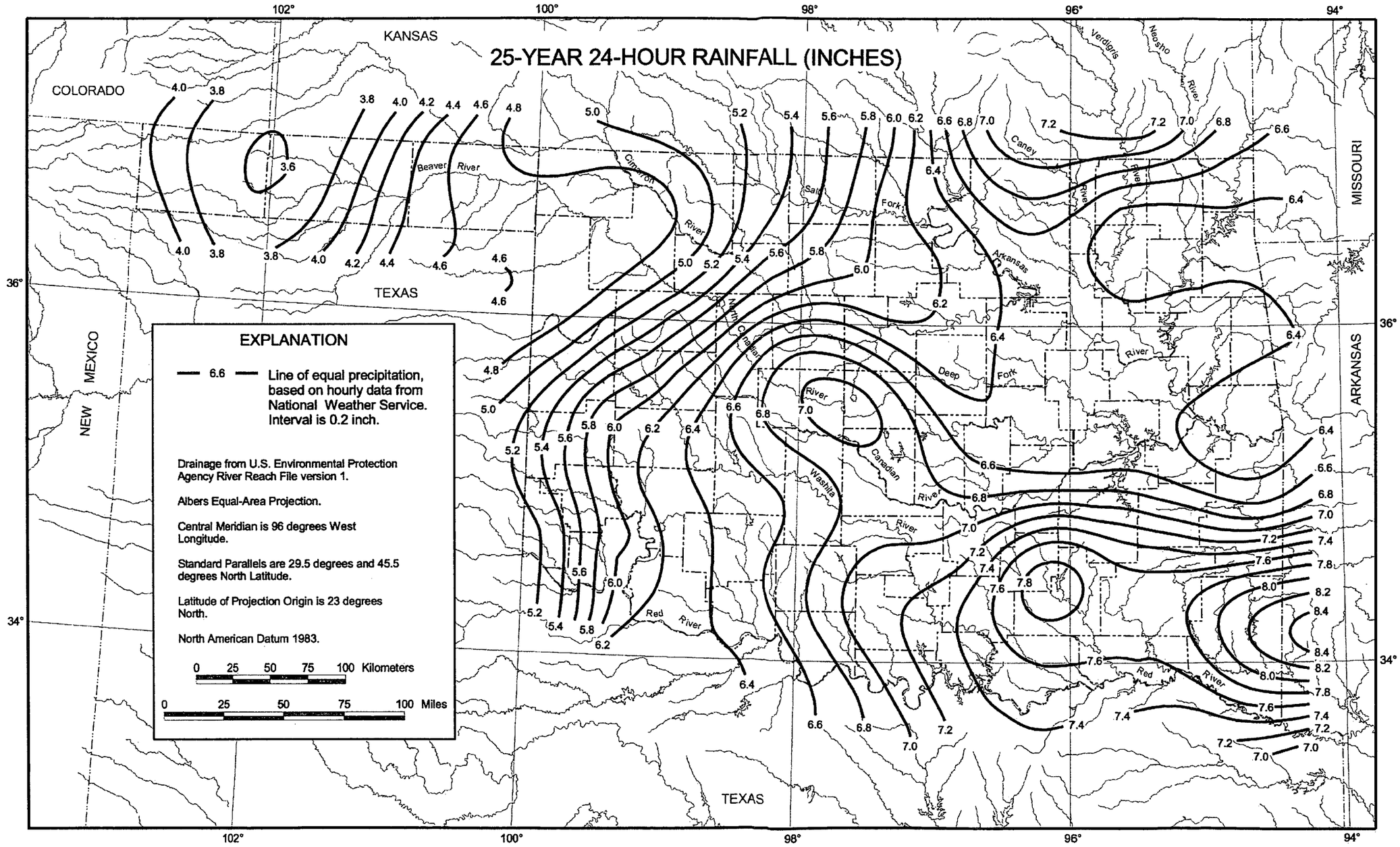


Figure 68. Depth of 25-year storm for 24-hour duration in Oklahoma.

APPENDIX D
STORMWATER DESIGN
CN VALUES

Table 2-2a Runoff curve numbers for urban areas [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area [2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2b Runoff curve numbers for cultivated agricultural lands [1]

Cover description			Curve numbers for hydrologic soil group			
Cover type	Treatment [2]	Hydrologic condition [3]	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T+ CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
	C&T+ CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

[1] Average runoff condition, and I_a=0.2S

[2] Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

[3] Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good ≥ 20%), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

APPENDIX E
STORMWATER DESIGN
UNIT PEAK DISCHARGE TABLE

Exhibit 4-II Unit peal discharge (q_u) for NRCS (SCS) type II rainfall distribution

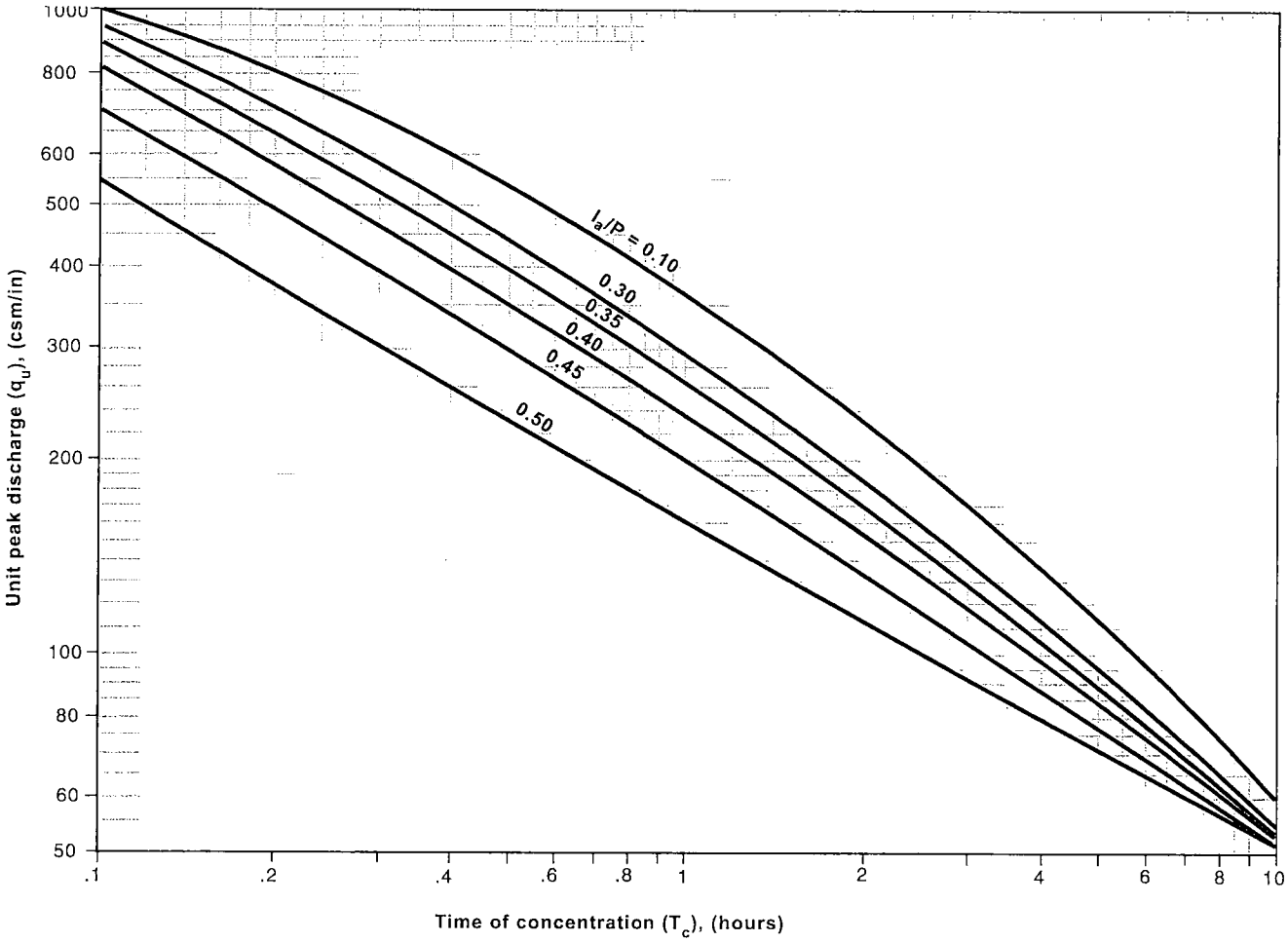


TABLE A
STORMWATER DESIGN
EQUATIONS AND COEFFICIENTS SUMMARY TABLE

DRAINAGE CALCULATIONS

Ada LF Transfer Station

SUMMARY TABLE - EQUATIONS AND COEFFICIENTS

LAND TYPE	C VALUE
Pasture; sandy soil	0.25
Industrial; heavy	0.85
Cultivated, heavy	0.45

LAND TYPE	SCS CN
Meadow (CN=58)	58
Urban; industrial (CN=88)	88
Fallow; bare soil (CN=86)	86

IDF VALUES	a ,b, c
2 Year	53, 10, 0.82
5 Year	64, 12, 0.79
10 Year	67, 11, 0.79
25 Year	93, 15, 0.79

RETARDANCE FACTOR K	
Rocky, Bare Soil	0.604
Commercial	0.511
Cultivated	0.775
Average Pasture	1.040

CHANNEL COEFFICIENT K'	
V-ditch	0.01252

RAINFALL P (in)	
2 Year	3.5
5 Year	4.8
10 Year	5.8
25 Year	7.5

TIME OF CONCENTRATION	
Overland Flow (min)	To = k*(L^0.37) / (S^0.20)
Channel Flow (min)	Tf = k'*(L^0.77) / (S^0.385)

RUNOFF CALCULATIONS	
Rational Method (cfs)	Q = C*i*A
SCS Method (in)	Q = (P-0.2S)^2 / (P+0.8S)
	S = (1000 / CN) - 10
Peak Discharge (cfs)	Qp = Qu * Am * Q * Fp

INTENSITY	I = a / (tc + b)^c
2 Year	I = 53 / (tc + 10)^0.82
5 Year	I = 64 / (tc + 12)^0.79
10 Year	I = 67 / (tc + 11)^0.79
25 Year	I = 93 / (tc + 15)^0.79

TABLE B
STORMWATER DESIGN
DRAINAGE STRUCTURE SUMMARY TABLE

DRAINAGE CALCULATIONS

Ada LF Transfer Station

SUMMARY TABLE - STRUCTURES

DRAINAGE CHANNELS	Contributing D.A. (acres)	Bottom width (feet)	Height (feet)	Side Slope (x:1)	Capacity (cfs)	Peak Flow (cfs)
West Ditch (gravel)	DA-1 (3.91 acres)	3.00	0.75	3.00	22.92	14.98
East Ditch (gravel)	DA-3 (2.14 acres)	3.00	0.67	3.00	18.22	11.77
Transfer Station Ditch (gravel)	DA-6 (0.34 acres)	3.00	0.67	3.00	22.79	3.23
West Pond Channel (gravel)	DA-2 (3.62 acres)	3.00	2.00	3.00	127.67	8.31
West Pond Outlet Structure	DA-2 (3.62 acres)	3.00	6.12	3.00	1808.89 (completely full)	9.08 (at 25 YR storm depth)
South Pond Outlet Structure	DA-1, DA-3, DA-4 (6.52 acres)	9.00	9.33	3.00	6589.54 (completely full)	10.56 (at 25 YR storm depth)
West Pond Overflow Weir	DA-2 (3.62 acres)	5.00	1.00	3.00	41.00	8.31
South Pond Overflow Weir	DA-1, DA-3, DA-4 (6.52 acres)	9.00	1.00	3.00	50.50	34.27

PIPE CONDUITS	Contributing D.A. (acres)	Diameter (inches)	Slope (%)	Capacity (cfs)	Peak Flow (cfs)	Manning's n value
West Culvert	DA-1 (3.91 acres)	18	4.48%	22.92	14.98	0.013
East Culvert	DA-3 (2.14 acres)	15	4.48%	13.67	11.77	0.013
Transfer Station Culvert	DA-6 (0.34 acres)	12	1.00%	3.56	3.23	0.013
Transfer Station Pipe	DA-6 (0.34 acres)	12	15.00%	13.80	3.23	0.013
Leachate Pond Pipe	DA-6 (0.34 acres)	12	1.00%	3.56	3.23	0.013

TABLE C
STORMWATER DESIGN
DETENTION SUMMARY TABLE

DRAINAGE CALCULATIONS

Ada LF Transfer Station

SUMMARY TABLE - DETENTION

DETENTION POND	Contributing D.A. (acres)	Depth (feet)	Top Elevation (feet)	Total Volume (ft^3)	Outlet Elevation (ft)	25 Year WSEL (feet)
West Pond	DA-2 (3.62 acres)	10.00	1004.45	71000	998.33	998.89
South Pond	DA-1, DA-3, DA-4 (8.13 acres)	14.00	995	205030	985.667	986.02

EXISTING	Contributing D.A.	Total Acreage	25 Year Peak Runoff (cfs)	Runoff when In = Out
	EX DA-1	7.47	16.24	11.58
	EX DA-2	5.30	11.41	8.98
	TOTAL	12.77	27.65	20.56

PROPOSED	Contributing D.A.	Total Acreage	25 Year Peak Runoff (cfs)	Runoff when In = Out
	DA-1	2.79	14.98	7.29
	DA-2	3.62	8.31	7.93
	DA-3	2.25	11.77	2.32
	DA-4	1.48	5.16	0.00
	DA-5	0.79	3.63	1.50
	DA-6	0.34	3.23	0.00
	DA-7	1.49	12.88	1.51
	TOTAL	12.77	59.96	20.56

DETENTION	Contributing D.A.	Pond Designation	Storage (ft^3)	Outflow (cfs)
	DA-2	West Pond	16264	9.08
	DA-1, DA-3, DA-4	South Pond	32528	10.56
	TOTAL		48792	19.64

APPENDIX E

CLOSURE PLAN

Municipal Solid Waste Transfer Station Closure Plan

City of Ada

Prepared For:

City of Ada

Prepared By:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
Oklahoma City, OK

CEC Project 183-660

AUGUST 2019

REGISTERED PROFESSIONAL ENGINEER
JEFF A. SHEPHERD
08/09/19
18259
OKLAHOMA
CA NO.: 6429
EXPIRES 6/30/20

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1.0 INTRODUCTION

The City of Ada Municipal Solid Waste Transfer Station (MSWTS) is located on County Road 1520, Ada, OK. The City of Ada is applying for a permit to operate a MSW facility as defined by Oklahoma Administrative Code (OAC) 252:515.

The site is owned and operated by the City of Ada.

This Closure Plan is part of a Tier II Permit Application prepared by Civil & Environmental Consultants, Inc. (CEC). The Closure Plan is in accordance with OAC 252:515-25.

2.0 REGULATIONS

This Closure Plan has been prepared pursuant to OAC 252:515-25, as promulgated by the Oklahoma Department of Environment Quality (ODEQ).

2.1 CLOSURE REQUIREMENTS

OAC 252:515-25 requires that all MSW disposal facilities to have an approved closure plan.

Prior to beginning closure of the transfer station, the owner/operator is required to give notice of intent to close the site. ODEQ regulations require closure to begin a minimum of 90 days after final receipt of waste at the facility. ODEQ requires completion of all closure activities within 180 days following the beginning of closure unless otherwise approved.

ODEQ also requires a Certification of Final Closure be prepared and sealed by an independent professional engineer licensed in the State of Oklahoma and signed by the site owner/operator.

ODEQ requires that upon approval of final closure, a notice shall be recorded in the property deed stating that the land has been used as a solid waste disposal facility. The notice shall specify the type, location, and quantity of wastes disposed of at the facility. Additionally, the notice shall state that a survey plat and a record of disposal area locations and elevations has been filed with the ODEQ and county, and that future uses may be restricted per OAC 252:515-25-57. A file stamped copy of the notice shall be provided to the ODEQ.

3.0 FINAL CLOSURE

3.1 EQUIPMENT REMOVAL

During final closure, all equipment used during the life of the transfer station shall be removed from the building. If the equipment is to be sold, then it will be thoroughly cleaned prior to being sold. All office furniture and other items will be removed and disposed of.

3.2 REPLACING OR REWORKING GROUNDWATER WELLS

The transfer station will not have any groundwater or gas wells or other monitoring equipment. Therefore, replacing or reworking these items will not be required.

3.3 GROUNDWATER MONITORING

The transfer station is not required to have groundwater monitoring wells. Therefore, groundwater monitoring will not be required.

3.4 COLLECTING SOIL/WATER SAMPLES

Soil and water samples will not be collected at the transfer station since all waste disposal operations will be conducted within the operations building.

3.5 DISPOSING OF FINAL WASTE

All waste will be removed from the transfer station via the waste transfer vehicles. The waste will be transferred to the appropriate landfill.

3.6 DECONTAMINATION OF FACILITY

The transfer station will be thoroughly cleaned and all water will be pumped to the leachate storage pond located at the City of Ada active municipal solid waste landfill.

3.7 MAINTAIN SITE SECURITY

Since the transfer station is located at 12435 County Road 1520, Ada, OK 74820, a security fence will already be in place.

4.0 CLOSURE SCHEDULE

The site will be closed when the City of Ada plans to close the transfer station. The final closure schedule is as follows:

- The ODEQ will be notified in writing prior to beginning final closure of the transfer station;
- Closure activities will begin no later than 90 days after final receipt of wastes;
- Closure activities will be completed according to the approved closure plan within 180 days after closure activities have been initiated;
- Extensions of the closure period may be granted by the ODEQ if the City of Ada demonstrates that closure will, of necessity, take longer than 180 days and that all steps have been taken, and will continue to be taken, to prevent threats to human health or the environment from the unclosed facility;
- A certification of final closure will be submitted to the ODEQ after completion of final closure; and
- Submit certified copies of modified deed to ODEQ.

APPENDIX F

WASTE EXCLUSION PLAN

Municipal Solid Waste Transfer Station Waste Exclusion Plan

City of Ada

Prepared For:

City of Ada

Prepared By:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
Oklahoma City, OK

CEC Project 183-660

August 2019

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APPENDICES

1.0 INTRODUCTION

1.1 BACKGROUND

Municipal solid waste (MSW) landfills are required to establish and implement a Waste Exclusion Plan (WEP) under Special Considerations outlined in the Oklahoma Administrative Code (OAC) 252:515-1-8. Requirements for WEP are described in Subchapter 29 of OAC 252:515. The latest amendment to Title 252, Chapter 515 (Management of Solid Waste) extended the requirement for establishing WEPs to be applicable to transfer station facilities and construction and demolition landfills (OAC 252:515-3-42). This amendment became effective on July 1, 2010.

The purpose of WEPs is to detect and prevent the disposal of prohibited wastes identified in the permit of the facility or under OAC 252:515. Prohibited wastes as indicated in OAC 252:515-19-31 includes the following:

- Hazardous, radioactive, or regulated polychlorinated biphenyl (PCB) waste
- Regulated medical waste
- Friable asbestos
- Non-hazardous Industrial Waste (NHIW)
- Baled waste, with exception. MSW sorted for recycling prior to baling or baled on-site may be disposed of at a disposal facility

With the exception of hazardous, radioactive, and PCB waste, the disposal of any of the wastes mentioned above is prohibited in a solid waste disposal facility unless the facility is specifically authorized by the permit to accept such wastes.

1.2 PURPOSE

This WEP outlines the requirements and measures to be followed at the City of Ada transfer station to ensure waste is properly reviewed and evaluated prior to acceptance so as to prevent the handling and storage of prohibited wastes at the facility.

The objectives of this WEP are as follows:

- Provide procedures for implementing specific measures, such as random inspections that will ensure incoming loads do not contain prohibited wastes;

- Provide guidelines for recordkeeping of the inspections performed at the facility;
- Establish the basis for training program that will help the facility personnel in charge of accepting and handling the waste identify wastes that do not meet the facility's permit criteria;
- The training should also help the facility personnel have a better understanding of regulatory requirements;
- Identify measures to follow regarding rejected wastes; and
- Outline procedures for the safe storage and proper disposal of prohibited wastes that, despite all precautions are found at the facility.

1.3 WEP LOCATION

Per OAC 252:515-29-4, complete copies of the WEP will be kept at appropriate locations at the transfer station. The primary location will be in the scale house office which gate attendants, supervisors, managers, and other relevant personnel have access to.

The WEP must be maintained on file in the operating records of the facility and must be available for onsite review by regulatory authorities to demonstrate compliance with the requirements of OAC 252:515-29.

1.4 WEP AMENDMENTS

Per OAC 252:515-29-2(b), any changes that are made to the approved WEP need to be checked and accepted by the Oklahoma Department of Environmental Quality (ODEQ). The new (or modified) WEP that includes all plan amendments must be submitted within 30 days to the ODEQ for approval.

2.0 WASTE EVALUATION

The City of Ada transfer station is a MSW recycling facility in the City of Ada, Oklahoma. The approximate location of the facility is included in the permit drawings. The following is the general site information:

Facility Name:	City of Ada Municipal Solid Waste Transfer Station
Address:	On County Road 1520, Ada, OK 74820
Facility Owner/Operator:	City of Ada
Facility Phone Number:	580-436-6300
Hours of Operation:	9 am to 5 pm
Primary Contact:	Gary Kinder
Primary Contact's Phone Number:	580-436-6300
ODEQ Permit Number:	Pending

The facility is permitted to accept municipal, residential, construction and demolition, commercial, and non-hazardous industrial waste. Except for the recycled waste which managed onsite for further sale and reuse by other facilities, the facility combines loads from various waste collection vehicles for transport to disposal sites permitted to accept such waste.

2.1 ACCEPTABLE WASTES

Below is the definition of the wastes permitted at City of Ada Transfer Station. These definitions should be used during the waste exclusion identification process.

- **Solid Waste** – all putrescible and nonputrescible refuse in solid or semisolid form including, but not limited to, garbage, rubbish, ashes or incinerator residue, street refuse, dead animals, demolition waste, construction waste, solid or semisolid commercial and industrial wastes.

- **Household Waste** – any solid waste derived by households, which can include single and multiple residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas.
- **Commercial Solid Waste** – all types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities.
- **Construction and Demolition Waste** – consist of debris generated during the construction, renovation, and demolition of buildings, roads, and bridges.
- **NHIW** – any of the following wastes deemed by the ODEQ to require special handling:
    - Unusable industrial or chemical products;
    - Solid waste generated by the release of an industrial product to the environment; or
    - Solid waste generated by a manufacturing or industrial process.

  The term NHIW shall not include waste that is regulated as hazardous waste or is commonly found as a significant percentage of residential solid waste. Examples of NHIW are listed in Appendix A.
- **Non-Friable Asbestos** – any material that contains more than one percent asbestos but cannot be pulverized under hand pressure.
- **Recyclables** – discarded materials that can be reprocessed for manufacture into new products. Common recyclables include paper, newsprint, ferrous metals, plastic, glass containers, aluminum cans, motor oil, and tires.
- **Special Wastes** – wastes that are non-hazardous wastes, but which, because of their nature or volume, process-generating waste, require special or additional handling aside form that given to routine household refuse. Appendix A presents a list of the wastes that fall under the "special waste" category and it provides the recommended management options for such wastes.
- **Other** – any NHIW or other wastes that have been deemed by the ODEQ as non-hazardous can be accepted at a transfer station.

2.2 PROHIBITED WASTES

Following is a list of the type of wastes that are prohibited at the City of Ada Transfer Station. These definitions should be used during the waste exclusion identification process. Please refer to Appendix B for the detailed description, handling procedures and examples of prohibited wastes.

- **Hazardous Waste** – includes all the wastes subject to regulation under OAC 252:205. Hazardous wastes may be gases, liquids, solids, or sludges, that are listed or exhibit the characteristics described in 40 CFR Part 261. Household hazardous wastes are excluded from Subtitle C regulation; therefore, these wastes may be accepted for disposal at a MSW landfill. Examples of other classes of solid wastes are excluded from regulation as a hazardous waste under 40 CFR Part 261.4(b) and may be accepted for disposal at a MSW landfill unit can be found in Appendix B. For a comprehensive list of hazardous wastes that shows the exact conditions under which these wastes are excluded from regulation refer to 40 CFR Part 261.4(b). A detail hazardous waste identification process is provided in Appendix B.
- **Radioactive Waste** – waste with radioactivity
- **Regulated Medical Waste**
- **PCB Waste** – waste containing PCB concentrations greater than or equal to 50 parts per million (ppm) and may be liquids or non-liquids, sludges, or solids that are defined in 50 CFR Part 761.60. PCB wastes do not include small capacitors found in fluorescent light ballast, white goods, (e.g. washers, dryers, refrigerators) or other consumer electrical products (e.g. radio and television units).
- **Friable Asbestos** – includes any material that contains more than one percent asbestos by weight or area, depending on whether it is a bulk or sheet material and can be crumbled, pulverized, or reduced to powder by pressure of an ordinary human hand.
- **Liquid Waste** – includes industrial wastes such as oil and natural gas refinery byproducts, municipal waste, chemical byproducts, agricultural wastes and radioactive water used as coolants in nuclear power plants.

2.3 ANALYTICAL AND SAMPLING REQUIREMENTS

In order to determine whether a material should be considered a hazardous or non-hazardous waste, certain analytical tests might be required. The type of analysis is dependent of the waste stream being disposed of. The analysis must always be conducted in accordance with the following test procedures developed by the United States Environmental Protection Agency (USUSEPA):

- Test Methods for Evaluation of Solid Wastes, Physical/Chemical Methods – USEPA Publication Number SW-846
- Methods for Chemical Analysis of Water and Wastes – USUSEPA Publication Number 600/4-79-020

Other analytical methods include American Society of Testing Materials (ASTM) Standard Methods or any other approved USEPA Method.

Methods used to determine if wastes are hazardous based on the characteristics they exhibit are indicated in Appendix B. A method used to determine the toxicity characteristic of wastes is the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP limits for which a waste can be regulated are shown in Appendix C.

Other testing parameters suggested for various typical wastes include but are not limited to: pH, flashpoint, reactive sulfide, paint filter, total petroleum, hydrocarbons, TCLP for metals, volatiles, semi-volatiles, herbicides, and PCBs, etc. It is the responsibility of the assigned transfer station personnel to determine the testing requirements based upon a case by case basis.

The analytical data should include information on the reference methods employed for the analysis, and such methods need to be approved by USEPA/ODEQ. Additionally, quality assurance and control (QA/QC) information should include sampling, handling, containerization and preservation techniques, chain of custody records, data on standards, duplicate analysis, spikes and blanks, and other pertinent statistical information.

The analytical methods must be performed using "representative samples" collected through accepted sampling methods as described in SW-846 or other approved references.

3.0 WASTE EXCLUSION PROCEDURES

The acceptance of NHIW at the City of Ada transfer station will follow the waste exclusion guidelines and procedures outlined in this section to prevent the disposal of prohibited wastes.

3.1 NOTIFICATION TO GENERATORS AND HAULERS

Generator and hauler inquiries can be directed to the gate attendant, waste coordinator, or other personnel at the facility who has received appropriate training (as specified in Section 5.0). When requested, the City of Ada personnel will supply generators with necessary forms and any additional analytical requirements prior to acceptance of the NHIW.

3.2 WASTE EVALUATION AND IDENTIFICATION

OAC 252:515-31 places the burden of NHIW identification on the generators. NHIW intended to be unloaded at the City of Ada transfer station for transportation to disposal sites permitted to accept such waste has to be properly identified by the generators as non-hazardous by using appropriate chemical analysis and/or process knowledge. Generators need to submit a certification form to the ODEQ, shown in Appendix D, which indicates the NHIW is a non-hazardous waste. The ODEQ may require the generator to provide additional documentation in support of the certification.

A copy of the certification form and accompanying supplemental documentation that was submitted to the ODEQ (see Appendix D) needs to be presented to the City of Ada transfer station by the generator or hauler prior to unloading of the NHIW. Additionally, prior to waste disposal, NHIW generators shall also complete the Generator Waste Profile Sheet (GWPS), presented in Appendix D.

Each incoming NHIW load must be evaluated to verify whether is acceptable at the facility or not. The GWPS will be reviewed to determine the waste acceptability. The criteria for waste acceptance or rejection will be based on the classification and characteristics of the waste as reported in the GWPS. Section 2.0 of the WEP provides a description of the wastes that are permitted and prohibited at the City of Ada transfer station. A list of examples of acceptable NHIW and special wastes is given in Appendix A. Some categories of hazardous wastes that can be accepted because they are excluded from hazardous waste regulations are shown in Appendix B.

Wastes that are not included in the Appendices can be evaluated using information about the waste as well as the process generating the waste. Examples of such information include, but are not limited to: Material Safety Data Sheets (MSDS), laboratory analysis (e.g. a total metal analysis that can show the metals of concern are not present in the waste), knowledge of the process that generated the waste, manufacturer's literature, or other means necessary to evaluate and/or analyze the waste and determine its suitability for disposal at the facility.

When using "process knowledge" to address one or more NHIW evaluation criteria, the following information shall be documented:

- Waste description, including all waste components and sources;
- Description indicating the reason for discarding the material;
- Description of changes in the generation process; and
- Required analysis (if any).

Analytical data review is usually necessary when either of the following occur:

- A new generator has submitted a request for waste disposal at the facility;
- An existing generator has submitted a request for disposal of a new waste stream;
- When an owner/operator becomes aware of a change in the process generating waste.

The frequency of testing required of the generator will be at the discretion of the owner/operator based on the size and variability of the waste stream. The facility will periodically re-evaluate approved NHIW waste streams and update waste identification information. The frequency of this evaluation will be at the discretion of the owner/operator based on the size and variability of the waste stream, but it will not exceed once every three years.

3.3 WASTE EVALUATION PERSONNEL

Only trained personnel will be responsible for evaluation and documentation of NHIW loads entering the facility. Examples of trained personnel include:

- General Manager;
- Foreman;
- Scale house attendants;
- Equipment operators;
- Any other trained personnel approved by the Manager.

The personnel in charge of waste evaluation and documentation will be trained following guidelines presented in Section 5.0 and will complete a training refresher course at least once a year.

3.4 GATE ACCEPTANCE

The gate attendant of scale operator should complete the checklist presented in Appendix D for every NHIW load entering facility. The responsibilities of the gate attendant include, but are not limited to:

- Verify that the GWPS and any other required state or federal approvals are on file for the generator;
- Check the volume of the incoming load;
- Check that the information in the manifest is in agreement with the GWPS; and
- Verify that all signatures are in place as required, and the signed manifest is placed in the site operating record.

3.5 RANDOM INSPECTIONS

Per OAC 252:515-26-3(a), an inspection is typically a visual observation of the incoming waste loads by an individual who is trained to identify wastes that would not be acceptable for disposal at the facility. An inspection is considered satisfactory if the inspector knows the nature of all materials received in the load and is able to discern whether the materials are potentially regulated hazardous wastes or other prohibited wastes.

Ideally all loads should be screened; however, it is generally not practical to inspect in detail all incoming loads. Random inspections, therefore, can be used to provide a reasonable means to adequately control the receipt of inappropriate wastes.

The frequency of random inspections may be based on the type and quantity of wastes received daily, and the accuracy and confidence desired in conclusions drawn from inspection observations. Because of statistical parameters are not provided in the regulation, a reasoned, knowledge-based approach may be taken. A random inspection program may take many forms such as inspecting every incoming load one day out of every month or inspecting one or more loads from transporters of wastes of unidentifiable nature each day.

The facility manager will be responsible for determining random detailed inspections of disposal vehicles. In general, a minimum of one weekly inspection should be performed. All random inspections should be documented using the *NHIW Random Inspection Report* form provided in Appendix D.

The random inspection record should include, as a minimum, the following information:

- Generator's name;
- Location at which the waste was generated;
- Conditions under which the waste was generated (date of generation, generation process, spill conditions if applicable, etc.);
- Quantity to be disposed (pounds, gallons, cubic yards, etc.);

- Physical condition of the waste (odor, color, phase – liquid/solid/sludge, etc.); and
- Laboratory analysis for waste characteristics, if applicable

Inspection priority can be given to haulers with unknown service areas, to loads brought to the facility in vehicles not typically used for disposal of municipal solid waste, and to loads transported by previous would-be offenders. For wastes of unidentifiable nature received from sources other than households (e.g. industrial or commercial establishments) the inspector should question the transporter about the source/composition of the materials. Inspections shall be conducted on the tipping floor of the transfer station before transfer of the waste to a disposal facility. Inspections of materials may be accomplished by discharging the vehicle load in an area designed to contain potentially hazardous wastes that may arrive at the facility. The waste should be carefully spread for observation using a front end loader or other piece of equipment.

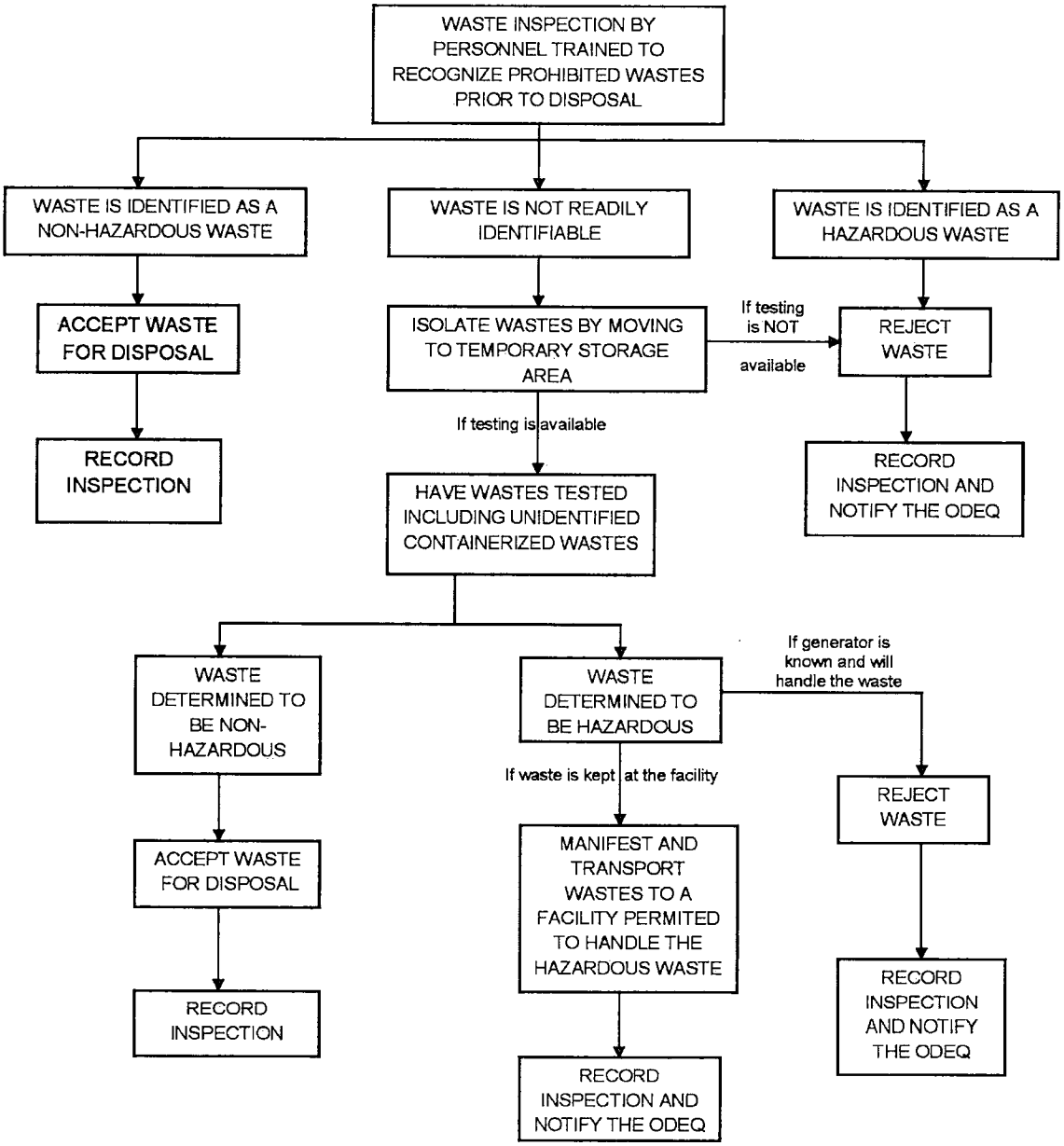
Personnel should be trained to identify suspicious wastes. Some indications of suspicious wastes are: hazardous placards or marking, liquids, powders or dusts, sludges, bright or unusual colors, drums or commercial size containers, or chemical odors. Containers with contents that are not easily identifiable, such as unmarked 55-gallon wastes drums, should they should be refused whenever possible. Upon verifying that the solid waste is acceptable, it may then be transferred for disposal.

When prohibited wastes are discovered during an inspection, the wastes should be rejected prior to hauler or individual attempting to dispose of such wastes leaves the facility. If such wastes are discovered during loading or transfer, they should be properly managed. If wastes temporarily stored at the site are determined to be hazardous, the owner or operator is responsible for the management of waste. Guidelines for appropriate management of rejected and prohibited wastes are provided in Section 4.0. Whenever prohibited wastes are found and/or rejected, the Waste Rejection Form found in Appendix D must be completed and the waste must be reported to the ODEQ.

If the random inspections indicate unauthorized wastes are being brought to the facility, then the random inspection program should be modified to increase the frequency of the inspections.

An inspection flow chart to identify, accept, or refuse solid waste is provided below.

Prohibited Waste Decision Tree



3.6 INSPECTION RECORDS

Per OAC 252:515-29-3(b), a record should be kept of each inspection that is performed. These records should be included and maintained in the facility operating record. Inspection records may include the following information:

- Date and time wastes were received for inspection;
- Source of the wastes;
- Vehicle and driver identification; and
- All observations made by the inspector.

3.7 NHIW TRACKING DOCUMENT OR MANIFEST

Persons disposing more than 10 cubic yards of NHIW in a calendar month will be required to have a NHIW Tracking Document accompanying each load of NHIW delivered to the facility. NHIW tracking documents will include the type, quantity and source of the NHIW received, and they will be maintained in the Site Operating Record.

A copy of the NHIW Tracking Document is included in Appendix D.

3.8 MONTHLY REPORTS

The records of the NHIW tracking documents entered for persons disposing more than 10 cubic yards or more of NHIW shall be submitted to the ODEQ no later than the last day of the month following the reporting month as required by OAC 252:515-31-4.

A copy of the monthly NHIW reporting form that must be submitted to the ODEQ by the landfill is included in Appendix D.

4.0 MANAGEMENT OF REJECTED OR PROHIBITED WASTE

The document for incoming waste loads at the facility will be reviewed at the entrance of the facility by the gate attendant. In the event of problems or discrepancies found during the review of the required documentation, these discrepancies will be resolved prior to acceptance of the waste for disposal. The types of discrepancies that can cause the waste load to be rejected include but are not limited to:

- Missing documents – GWPS or ODEQ approval letters are not on file;
- The waste tracking document or manifest is not available upon arrival to the facility;
- The information in the tracking document/manifest is incomplete or incorrect; and The information

Any incoming load can be subject to inspections either based on an established random inspection schedule or due to suspicions regarding the nature of the waste, the generator, or the transporter. If the waste does not pass the inspections, i.e. prohibited, unknown, or suspicious wastes are found during the inspection, then the owner, operator, or assigned personnel can refuse to accept the waste at the facility, and the waste will remain the responsibility of the transporter. As a minimum response procedure, the facility personnel should implement the following steps to deal with rejected or prohibited wastes encountered at the facility:

- Segregate the wastes;
- Question the driver;
- Contact possible source;
- Use appropriate protective equipment;
- Contact laboratory support if required; and
- Notify a response agency if necessary

If the owner is unable to identify the transporter who brought the prohibited waste, the owner or operator must ensure that the waste is managed in accordance with all applicable Federal and State regulations. If the wastes are to be transported from the facility, the waste must be: (1) stored at the facility in accordance with applicable regulations, (2) manifested, (3) transported by a licensed transporter, and (4) sent to a permitted Treatment, Storage, or Disposal (TSD) facility for disposal. These requirements are discussed further in this section.

4.1 NOTIFICATION OF REJECTED OR PRHIBITED WASTES

When regulated quantities of hazardous wastes or other prohibited wastes are identified by the facility prior to receipt of the waste in the facility, during the inspection of the waste or acceptance at the gate or upon disposal of the waste, the owner or assigned personnel must notify the ODEQ by the end of the next working day when the prohibited waste was identified. The notification will describe the reasons for the rejection of the waste and it will include the following information:

- Date of rejection;
- Name, address, phone number and contact person of the waste generator when such data can be obtained; and/or
- Name of driver, tag number of the vehicle, carrier name, address, telephone number, and contact person when such data can be obtained.

The form included in Appendix D (Waste Rejection Form) can be used for notification of rejected wastes to the ODEQ.

4.2 PROHIBITED WASTE STORAGE

Operators of processing facilities should be prepared to handle hazardous wastes that are inadvertently received at the facility. This may include having containers such as 55-gallon drums available on-site and retaining a list of names and telephone numbers of the nearest haulers licensed to transport hazardous waste. Hazardous waste may be stored at the facility for 90 days, provided that the following procedures required by 40 CFR 262.34, or other applicable State requirements are followed:

- The waste is placed in tanks or containers;
- The date of receipt of the waste is clearly marked and visible on the container;
- The container or tank is marked clearly with the words "Hazardous Waste";
- An employee is designated as the emergency coordinator who is responsible for coordinating all emergency response measures; and
- The name and telephone number of the emergency coordinator and the number of the fire department is posted next to the facility phone.

Extensions to store the waste beyond 90 days may approved pursuant to 40 CFR 262.34.

4.3 PROHIBITED WASTE DISPOSAL

If the owner or operator transports the wastes off-site, the owner or operator must comply with 40 CFR Part 262 or the analogous State requirements. The owner or operator is required to:

- Obtain an USEPA identification number (USEPA form 8700-12 may be used to apply for an USEPA identification number);
- State or Regional personnel may be able to provide a provisional identification number of the telephone;
- Package the waste in accordance with Department of Transportation (DOT) regulations under 49 CFR Parts 173, 178, and 179 (the container must be labeled, marked, and display a placard in accordance with DOT regulations on hazardous wastes under 40 CFR 172); and
- Properly manifest the waste designating a permitted facility to treat, store, or dispose of the prohibited waste.

If the owner or operator decides to treat or store (for more than 90 days) the prohibited waste on-site, he or she must comply with the applicable State or Federal requirements for hazardous waste treatment, storage, and disposal facilities. This may require a permit.

PCB wastes containing more than or equal to 50 parts per million (ppm) PCB concentrations detected at the facility must be stored and disposed of according to 40 CFR Part 761. The owner or operator is required to:

- Obtain an USEPA PCB identification number;
- Properly store the PCB waste;
- Mark containers or items with the words "Caution; contains PCBs"; and
- Manifest the PCB waste for shipment to a permitted incinerator, chemical waste landfill, or high efficiency boiler (depending on the nature of the PCB waste) for disposal.

The proper disposition/remediation of the prohibited waste will be specific to the waste and implemented upon occurrence and approval by the ODEQ.

4.4 VERIFICATION OF DISPOSAL OF PROHIBITED WASTE

Verification of proper disposal of prohibited waste will be submitted to the ODEQ and a copy will be maintained in the operating record of the facility.

5.0 PERSONNEL TRAINING

Per OAC 252:515-29-3(C), owners or operators must ensure that personnel are trained to identify potential regulated hazardous waste and other prohibited wastes. These personnel could include supervisors, designated inspectors, equipment operators, and weigh station attendants who may encounter prohibited wastes and who will be in charge of incoming load evaluations and inspections.

The training program should emphasize methods to identify containers and labels typical of hazardous waste and other prohibited wastes. Training also should address, hazardous waste handling procedures, safety precautions, and recordkeeping requirements. This information is provided in training courses designed to comply with the Occupational Safety and Health Act (OSHA) under for 29 CFR Part 1910.120. Information covered in these courses includes regulatory requirements under 40 CFR Parts 260 through 270, 29 CFR Part 1910, and related guidance documents that discuss topics as: general hazardous waste management; identification of hazardous wastes; transportation of hazardous wastes; standards of hazardous waste treatment; storage and disposal facilities; and hazardous waste worker health and safety training and monitoring requirements.

All gate attendants, disposal facility operators, and other relevant personnel shall receive an initial eight (8) hours of basic training in waste exclusion as related to the WEP.

5.1 PERSONNEL TRAINING CURRICULUM

The training program should include, as minimum, the following topics:

- Overview of Resource Recovery and Conservation Act (RCRA) and Subtitles C and D programs;
- Regulations and procedures for NHIW acceptance and exclusion;
- Waste identification and evaluation including:
    - Methods to identify containers and labels typical of hazardous, radioactive, PCB, infectious biomedical, and asbestos wastes;

    - Methods to identify hazardous wastes and exclusions; and
    - Basics about the chemistry related to the physical characteristics of wastes.
- Waste approval procedures;
- Waste rejection procedures;
    - Notifications of rejected wastes;
    - Storage, disposal, and verification of disposal of rejected/prohibited wastes.
- Waste inspections;
- Overview of analytical methods, including:
    - Type of testing required for the characterization of different wastes;
    - Type of information that should be included in test/laboratory reports;
    - Interpretation of analytical test results; and
    - Significance of laboratory QA/QC procedures.

5.2 NOTIFICATION OF REJECTED OR PRHIBITED WASTES

Documentation of training should be recorded using the Personnel Training Record form presented in Appendix E. This documentation should be placed in the operating record for the facility. The form must be signed by the course instructor, certifying that the class included all relevant topics mentioned in Section 5.1 and that the personnel included in the list was present for the entire length of the course.

The course syllabus or curriculum should be also included and maintained in record next to the record of personnel training record form.

5.3 REFRESHER TRAINING

Documentation of training should be recorded using the Personnel Training Record form presented in Appendix E. This documentation should be placed in the operating record for the facility. The form must be signed by the course instructor

APPENDIX A

EXAMPLES OF NHIW WASTE STREAMS

EXAMPLES OF NHIW WASTE STREAMS

1) Air pollution control equipment residues
2) Arsenicals-treated wood that meets the exemption criteria of 40 CFR 261.4(b)(9)
3) Auto shredder fluff
4) Blasting media and other abrasives used to remove surface coatings
5) Coal combustion ash per 40 CFR 261.4 (b)(4)
6) Combustible materials as defined in 49 CFR 173.120 and 173.124, that are not regulated as hazardous wastes.
7) Containers which are RCRA empty in accordance with 40 CFR 261.7, or empty containers which have held pesticides (i.e., herbicides, fungicides, or rodenticides)
8) Incinerator ash
9) Lighting fixture ballasts containing non-TSCA regulated PCBs per CFR Part 761
10) Miscellaneous chemical spill residue, primarily non-fuel related
11) Non-hazardous pesticides (i.e., herbicides, fungicides, or rodenticides)
12) Oil filters meeting the requirements of 40 CFR 261.4(b)(13)
13) Outdated and off-specification products
14) Outdated, off-specification, or mislabeled over-the-counter medicines which are not hazardous in accordance with 40 CFR 261, Subparts C or D
15) Petroleum contaminated soil and debris, oily rags and absorbents with > 1000 ppm TPH
16) Pharmaceutical waste not identified in (14)
17) Refractory & foundry sands and slag, retort, fly ash, cement kiln dust
18) Resins, polymers, and adhesives
19) Wastes exempted by the RCRA Bevill waste exclusion in 40 CFR 261.4 (b)(7)
20) Wastes rendered non-hazardous that were formerly hazardous pursuant to 40 CFR 261, Subpart C
21) Unknowns
22) Wastes from metal plating processes

SPECIAL WASTE & MANAGEMENT OPTIONS

Waste Type	Management Option
Car wash sumps	Waste from car wash sumps may be accepted without any special testing. Car wash sumps must pass the Paint Filter Liquid Test (PFLT).
Dry cleaning wastes	Filters and sludges for CESQG* should not be accepted for disposal without confirming generators have complied with all requirements specified under State regulations and the disposal site where transferred is permitted to accept such waste.
Empty drums	Drums must contain less that 1-inch of product and the bung should be removed. Drums should be crushed prior to transfer. Clean drums (triple-rinsed by generator) in good condition can be stockpiled for reuse as waste containers, used oil storage containers or recycled.
Floor sumps	All floor sump wastes must pass the PFLT.
Fluorescent tubes/ballasts	Fluorescent light tubes contain mercury and may exhibit hazardous waste characteristics (D009). Generators must manage fluorescent light tubes under the Universal Waste Rule and cannot dispose in the landfill if the material tests hazardous. Ballasts manufactured before 1979 may contain small quantities of PCBs. Fluorescent tubes and ballasts may be accepted from households, but cannot be accepted from CESQGs* if they are hazardous or contain PCBs $\geq$ 50ppm. If the ballasts are suspected of containing PCBs, they should be placed in a bucket and mixed with cement prior to transfer.
Grease trap wastes	Grease trap wastes may be accepted if they pass the PFLT. Generators should be encouraged to recycle this waste.
Grit and bar screen wastes	These wastes may be accepted if they pass the PFLT.
Infectious/Non-infectious/Red bag waste	Infectious wastes from hospitals, medical clinics, mortuaries, health care units, dental offices, etc. should not be accepted unless properly treated. Non-infectious waste shall be containerized in a properly labeled red bag. "Sharps" (needles, syringes, scalpels) should be placed in rigid containers with lids (i.e. 5-gallon plastic buckets or plastic milk jugs) and must be encapsulated in a mixture which will solidify.
Lab chemicals	Laboratory chemicals shall not be accepted.
Latex/oil base paints and cans	Empty cans can be crushed and disposed. Small volumes of paint from households should be absorbed, dried or solidified prior to disposal.
Lead-acid batteries	Lead-acid batteries should be stockpiled for recycling in an upright, non-leaking position, no more than 2 batteries high, on a pallet. **Lead Batteries, which are not household hazardous waste, MAY NOT be disposed.*
Liquids	Liquid waste shall not be accepted.

SPECIAL WASTE & MANAGEMENT OPTIONS (continued)

Waste Type	Management Option
PCB wastes	Electrical transformers and soils contaminated with PCBs must have concentrations below 50ppm and generators have complied with all requirements.
Pesticide containers	Pesticide containers must be empty, triple rinsed and punctured. The containers should be crushed prior to transfer.
Petroleum contaminated waste	Petroleum contaminated soil and debris, oily rags and absorbents can be accepted as de minimis waste if the TPH level is < 1,000 ppm and disposal site where transferred is permitted to accept such as waste.
Sewage treatment plant sludges	Sewage treatment plant sludges shall not be accepted.
Treated wood	Railroad ties, bridge timbers, fence post, telephone poles and other materials treated with pentachlorophenol, creosote, or arsenic may exhibit hazardous waste characteristics (D004, D023, D024, D025, D026, D037). However, if the treated wood is quite old, it may be reasonable to assume that it will not exhibit these characteristics and that it may be accepted for disposal without testing. If new and not exempt, recently treated wood wasted should be analyzed for hazardous waste characteristics.
Used oil	Used oil shall not be accepted.
Used oil filters	Used oil filters must be drained of all free liquid prior to disposal. NOTE: Spin-on used oil filters must be punctured or crushed to be exempt from a hazardous waste classification. Otherwise, they must be tested.
Water treatment sludges	Water treatment sludges shall not be accepted.
White goods containing CFCs	If chlorofluorocarbons (CFCs) have been removed from the white good (refrigerator, freezer or air conditioner), it can be stockpiled for recycling or crushed and disposed. If the CFCs have not been removed from the white good, it must be rejected or stockpiled in a separate area for removal of CFCs at a later date.
Wood and coal ashes	Hot wood and coal ashes (including fly ash and bottom ash) should be placed in a separate area where they can be spread out and fully cooled prior to transfer.

*PFLT – Paint Filter Liquid Test (USEPA Method SW-846/9095)

*CESQG – Conditionally Exempt Small Quantity Generator

APPENDIX B

HAZARDOUS WASTE IDENTIFICATION (HWID) PROCESS

HAZARDOUS WASTE IDENTIFICATION (HWID) PROCESS

The United States Environmental Protection Agency (USEPA) regulates all waste in the United States under the Resource Conservation and Recovery Act (RCRA). The three programs established under RCRA are Solid Waste (Subtitle D), Hazardous Waste (Subtitle C) and Underground Storage Tanks (USTs). RCRA Subtitle C establishes a federal program to manage hazardous wastes from cradle to grave. That includes regulations for the generation, transportation, and treatment, storage or disposal of hazardous wastes.

The term "hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, - concentration, or physical, chemical, or infectious characteristic may:

a. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
b. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Proper hazardous waste identification (HWID) is essential to ensure the proper handling and disposal of wastes; however, this can be a complex task. Therefore, the best approach for the identification of hazardous wastes consists of answering the following four questions:

1. Is the material a solid waste? (See: 40 CFR Part 261.2)
2. Is the waste specifically excluded from RCRA? (40 CFR Part 261.4, See examples in Appendix A).
3. Is the waste a listed hazardous waste? (40 CFR Part 261.30)
4. Does the waste exhibit a characteristic of hazardous waste? (40 CFR Part 261.20)

The subsequent sections examine these key questions.

1.0 SOLID WASTE

The Subtitle C program uses the term solid waste to denote something that is a waste. In order for a material to be classified as a hazardous waste (HW), it must first be a solid waste. The statutory

definition points out that whether a material is a solid waste is not based on the physical form of the material (i.e., whether or not it is a solid as opposed to a liquid or gas), but rather that the material is a waste. The regulation further defines solid waste as any material that is discarded by being either: abandoned, inherently waste-like, a certain military munitions, or recycled.

Once the material has been identified as a solid waste, then it can be classified as either hazardous or non-hazardous waste. Following the HWID process, the next step is to determine whether the solid waste in hand is subject to any sort of exclusions from the definition of hazardous waste, as described in the next section.

2.0 WASTES EXCLUDED FROM RCRA SUBTITLE C REGULATION

Not all RCRA wastes qualify as hazardous wastes. There are four categories for exclusions from being considered a RCRA hazardous waste. If the waste fits one of these categories, it is not regulated as a RCRA hazardous waste, and the hazardous waste requirements do not apply.

➢ Exclusions from the definition of solid waste

A material cannot be a hazardous waste if it does not meet the definition of a solid waste. Below are some of the exclusions from the definition of solid waste:

- ❑ Domestic sewage and mixtures of domestic sewage
- ❑ Industrial wastewater discharges (point source discharges)
- ❑ Irrigation return flows
- ❑ Radioactive waste
- ❑ In-situ mining waste
- ❑ Pulping liquors
- ❑ Spent sulfuric acid
- ❑ Closed-loop recycling
- ❑ Spent wood preservatives
- ❑ Coke by-product wastes
- ❑ Splash condenser dross residue
- ❑ Recovered oil from petroleum refining operation

- ❑ Condensates from Kraft mill stream strippers
- ❑ Comparable fuels
- ❑ Processed scrap metal
- ❑ Shredded circuit boards
- ❑ Mineral processing secondary materials

➢ Exclusions from the definition of hazardous waste

USEPA excludes certain solid wastes from the definition of hazardous waste. If a material meets an exclusion from the definition of hazardous waste, it cannot be a hazardous waste, even if the material technically meets a listing or exhibits a characteristic that would make it hazardous. Following are the exemptions from the definition of hazardous waste as per 40 CFR 261.4(b):

- ❑ §261.4(b)(1) Household Hazardous Waste
- ❑ §261.4(b)(2) Agricultural Waste
- ❑ §261.4(b)(3) Mining Overburden
- ❑ §261.4(b)(4) Fossil Fuel Combustion Waste (Bevill)
- ❑ §261.4(b)(5) Oil, Gas, and Geothermal Wastes (Bentsen Amendment)
- ❑ §261.4(b)(6) Trivalent Chromium Wastes
- ❑ §261.4(b)(7) Mining and Mineral Processing Wastes (Bevill)
- ❑ §261.4(b)(8) Cement Kiln Dust (Bevill)
- ❑ §261.4(b)(9) Arsenically Treated Wood
- ❑ §261.4(b)(10) Petroleum Contaminated Media & Debris from Underground Storage Tanks
- ❑ §261.4(b)(11) Injected Groundwater
- ❑ §261.4(b)(12) Spent Chlorofluorocarbon Refrigerants
- ❑ §261.4(b)(13) Used Oil Filters
- ❑ §261.4(b)(14) Used Oil Distillation Bottoms
- ❑ §261.4(b)(15) Landfill Leachate or Gas Condensate Derived from Certain Listed Wastes
- ❑ §261.4(b)(17) §261.4(b)(18) Project XL Pilot Project Exclusions

➢ Exclusions for waste generated in raw material, product storage, or manufacturing units

Hazardous wastes generated in raw material, product storage, or process (e.g. manufacturing) units are exempt from Subtitle C hazardous waste regulation while the waste remains in such units. These units include tanks, pipielines, vehicles, and vessels used either in the manufacturing process or for storing raw materials or products, but specifically do not include surface impoundments. Once the waste is removed from the unit, or when a unit temporarily or permanently ceases operation for 90 days the waste is considered generated and is subject to regulation.

- Exclusions for laboratory samples and waste treatability studies

Hazardous waste samples are small, discrete amounts of hazardous waste that are essential to ensure accurate characterization and proper hazardous waste treatment. In order to facilitate the analysis of these materials, RCRA exempts characterization samples and treatability study samples from Subtitle C hazardous waste regulation.

The MSWLF Criteria exclude conditionally exempt small quantity generators (CESQG) waste (as defined in 40 CFR §261.5) from the definition of "regulated hazardous wastes" for purposes of complying with 40 CFR 258.20. CESQG waste includes listed hazardous wastes or wastes that exhibit a characteristic of a hazardous waste that are generated in quantities no greater than 100 kg/month, or for acute hazardous waste, 1 kg/month. Under 40 CFR §261.5(f)(3)(iv) and (g)(3)(iv), CESQG hazardous wastes may be disposed at facilities permitted, licensed, or registered by a State to manage municipal or industrial solid waste. Although some states allow hazardous waste generated by CESQG to be disposed in a MSWLF, Oklahoma statutes specifically prohibit any quantity of hazardous waste from being disposed at an Oklahoma solid waste disposal facility.

After it is determined that a waste is a solid waste and is not either excluded from the definitions of solid or hazardous waste or exempt from Subtitle C hazardous waste regulation, the next step is to determine if the waste is a regulated hazardous waste.

A solid waste is a regulated -hazardous waste-if it:

1. is listed in Subpart D of 40 CFR Part 261 (termed a "listed" waste);
2. exhibits a characteristic of a hazardous waste as defined in Subpart C of 40 CFR Part 261; or
3. is a mixture of a listed hazardous waste and a non-hazardous solid waste.

3.0 LISTED WASTES

USEPA determined that some specific wastes are hazardous. These wastes are incorporated into lists published by the Agency. These lists are organized into three categories:

The F-list (non-specific source wastes). This list identifies wastes from common manufacturing and industrial processes, such as solvents that have been used in cleaning or degreasing operations. Because the processes producing these wastes can occur in different sectors of industry, the F-listed wastes are known as wastes from non-specific sources. Wastes included on the F-list can be found in the regulations at 40 CFR §261.31. The F list wastes can be divided into seven groups, depending on the type of manufacturing or industrial operation that creates them:

- ❑ Spent solvent wastes (codes F001 - F005)
- ❑ Electroplating and other metal finishing wastes (codes F006 - F012, and F019)
- ❑ Dioxin-bearing wastes (codes F020 - F023, and F026 - F028)
- ❑ Chlorinated aliphatic hydrocarbons production wastes (codes F024 and F025)
- ❑ Wood preserving wastes (F032, F034, and F035)
- ❑ Petroleum refinery wastewater treatment sludges (F037 and F038)
- ❑ Multisource leachate (F039)

The K-list (source-specific wastes). This list includes certain wastes from specific industries, such as petroleum refining or pesticide manufacturing. Certain sludges and wastewaters from treatment and production processes in these industries are examples of source-specific wastes. Wastes included on the K-list can be found in the regulations at 40 CFR §261.32.

To determine if a waste qualifies as K listed, a facility must first determine whether the waste fits within one of the 17 different industrial or manufacturing categories on the list. Second, a facility must determine if this waste matches one of the detailed K list waste descriptions in 40 CFR §261.32. The 17 industries that generate K list waste are:

- ❑ Wood preservation
- ❑ Organic chemicals manufacturing
- ❑ Pesticides manufacturing
- ❑ Petroleum refining
- ❑ Primary copper production
- ❑ Primary zinc production
- ❑ Ferroalloys production
- ❑ Veterinary pharmaceuticals manufacturing
- ❑ Inorganic pigment manufacturing
- ❑ Inorganic chemicals manufacturing
- ❑ Explosives manufacturing
- ❑ Iron and steel production
- ❑ Primary lead production
- ❑ Primary aluminum production
- ❑ Secondary lead processing
- ❑ Ink formulation
- ❑ Coking (processing of coal to produce coke, a material used in iron and steel production).

The P-list and the U-list (discarded commercial chemical products). These lists include specific commercial chemical products in an unused form. Some pesticides and some pharmaceutical products become hazardous waste when discarded. Wastes included on the P- and U-lists can be found in the regulations at 40 CFR §261.33. For a waste to qualify as P- or U-listed, the waste must meet the following three criteria:

- ❑ The waste must contain one of the chemicals listed on the P or U list
- ❑ The chemical in the waste must be unused
- ❑ The chemical in the waste must be in the form of a CCP

For purposes of the P and U lists, a CCP is a chemical that is one of the following: 100% pure, technical (e.g. commercial) grade, or the sole active ingredient in a chemical formulation.

4.0 CHARACTERISTIC WASTES

Waste that have not been specifically listed may still be considered a hazardous waste if exhibits one of the four characteristics defined in 40 CFR Part 261 Subpart C - ignitability **(D001), corrosivity (D002), reactivity (D003), and toxicity (D004 - D043)**.

Ignitability - Ignitable wastes can create fires under certain conditions, are spontaneously combustible, or have a flash point less than 60°C (140 °F). Examples include waste oils and used solvents. For more details, refer to 40 CFR §261.21. Test methods that may be used to determine ignitability include the Pensky-Martens Closed-Cup Method for Determining Ignitability (Method 1010A), the Setaflash Closed-Cup Method for Determining Ignitability (Method 1020B), and the Ignitability of Solids (Method 1030).

Corrosivity - Corrosive wastes are acids or bases (pH less than or equal to two (2), or greater than or equal to 12.5) that are capable of corroding metal containers, such as storage tanks, drums, and barrels. Battery acid is an example. For more details, refer to 40 CFR §261.22. The test method that may be used to determine corrosivity is the Corrosivity Towards Steel (Method 1110A).

Reactivity - Reactive wastes are unstable under "normal" conditions. They can cause explosions, toxic fumes, gases, or vapors when heated, compressed, or mixed with water. Examples include lithium-sulfur batteries and explosives. For more details, see 40 CFR §261.23. There are currently no test methods available.

Toxicity - Toxic wastes are harmful or fatal when ingested or absorbed (e.g., containing mercury, lead, etc.). When toxic wastes are land disposed, contaminated liquid may leach from the waste and pollute ground water. Toxicity is defined through a laboratory procedure called the Toxicity Characteristic Leaching Procedure (TCLP) (Method 1311). The TCLP helps identify wastes likely to leach concentrations of contaminants that may be harmful to human health or the environment. Limits of TCLP are provided in Appendix C. For more details, refer to 40 CFR §261.24.

APPENDIX C

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) LIMITS

Toxicity Characteristic Leaching Procedure (TCLP) Limits

Heavy Metals	USEPA HW Code	Regulated Level		Analytical Method
		TCLP (mg/L)	Total (mg/kg)	
Arsenic (As)	D004	5.0	100	SW-846-1311/ SW-846-6010
Barium (Ba)	D005	100.0	2000	SW-846-1311/ SW-846-6010
Cadmium (Cd)	D006	1.0	20	SW-846-1311/ SW-846-6010
Lead (Pb)	D008	5.0	100	SW-846-1311/ SW-846-6010
Chromium (Cr)	D007	5.0	100	SW-846-1311/ SW-846-6010
Mercury (Hg)	D009	0.2	4	SW-846-1311/ SW-846-7470
Selenium (Se)	D010	1.0	20	SW-846-1311/ SW-846-7470
Silver (Ag)	D011	5.0	100	SW-846-1311/ SW-846-6010

Volatiles	USEPA HW Code	Regulated Level		Analytical Method
		TCLP (mg/L)	Total (mg/kg)	
Benzene	D018	0.5	10	SW-846-1311/ SW-846-8260
Carbon Tetrachloride	D019	0.5	10	SW-846-1311/ SW-846-8260
Chlorobenzene	D021	100.0	2000	SW-846-1311/ SW-846-8260
Chloroform	D022	6.0	120	SW-846-1311/ SW-846-8260
1,2- Dichloroethane	D028	0.5	10	SW-846-1311/ SW-846-8260

Toxicity Characteristic Leaching Procedure (TCLP) Limits (continued)

Volatiles	USEPA HW Code	Regulated Level		Analytical Method
		TCLP (mg/L)	Total (mg/kg)	
1,1-Dichloroethlene	D029	0.7	14	SW-846-1311/ SW-846-8260
Methyl ethyl ketone	D035	200.0	4000	SW-846-1311/ SW-846-8260
Tetrachloroethylene	D039	0.7	14	SW-846-1311/ SW-846-8260
Trichloroethylene	D040	0.5	10	SW-846-1311/ SW-846-8260
Vinyl Chloride	D043	0.2	4	SW-846-1311/ SW-846-8260
Herbicides	**USEPA HW Code**	**Regulated Level**		**Analytical Method**
		TCLP (mg/L)	**Total (mg/kg)**	
2,4-D	D016	<10.0	200	SW-846-1311/ SW-846-8080
2,4,5-TP (Silvex)	D017	<1.0	20	SW-846-1311/ SW-846-8080
Pesticides	**USEPA HW Code**	**Regulated Level**		**Analytical Method**
		TCLP (mg/L)	**Total (mg/kg)**	
Chlorodane	D020	<0.03	0.6	SW-846-1311/ SW-846-8080
Endrin	D012	<0.02	0.4	SW-846-1311/ SW-846-8080
Heptachlor	D031	<0.008	0.16	SW-846-1311/ SW-846-8080

Toxicity Characteristic Leaching Procedure (TCLP) Limits (continued)

Pesticides	USEPA HW Code	Regulated Level		Analytical Method
		TCLP (mg/L)	Total (mg/kg)	
Lindane	D013	<0.4	8	SW-846-1311/ SW-846-8080
Methyozychlor	D014	<10.0	200	SW-846-1311/ SW-846-8080
Tozaphene	D015	<0.5	10	SW-846-1311/ SW-846-8080

General Tests	USEPA HW Code	Acceptable Levels	Analytical Method
pH	D002	2.0<pH<12.5	SW-846-9045
Ignitability (Liquids Only)	D001	>140° F (60° C)	SW-846-C7
Free Liquids		NO FREE LIQUIDS	SW-846-9095
PCBs		<50 mg/kg or ppm	SW-846-8080
TPH		Varies by Landfill	SW-846-8015, USEPA 418.1 API-(GC/FID) ASTM-D3987-85/SW-846-9070

APPENDIX D

FORMS

GENERATOR WASTE PROFILE SHEET (GWPS)

A. GENERATOR INFORMATION

1. Generator Name:_____
2. Site Location:_____
3. City:_____
State: _____ Zip Code:_____
4. Phone: _____
5. Fax:_____
6. State Waste Code:_____

B. CUSTOMER INFORMATION

1. Customer Name:_____
2. Address: _____
3. City:_____
State: _____ Zip Code:_____
4. Phone: _____
5. Fax:_____
6. Contact: _____
7. Title:_____

C. WASTE STREAM INFORMATION

1. Common Name of Waste: _____
2. Detailed Description of Process Generating Waste and Material Description:

_____

_____

_____3. Industrial Generator ☐ Yes ☐ No

4. Municipal Generator ☐ Yes ☐ No
5. Physical State at 70° ☐ Solid ☐ Semisolid ☐ Liquid ☐ Powder ☐ Combination
6. Odor ☐ Yes ☐ No Describe _____ 7. Color _____ 8. pH Range _____
9. Flash Point _____ 10. Reactive ☐ Yes ☐ No With _____
11. Free Liquid ☐ Yes ☐ No 12. Water content % by volume _____ 13. Viscosity_____
14. Is the analytical attached derived from testing a representative sample IAW 40 CFR 261.35? ☐ Yes ☐ No
15. Does the waste contain radioactive or U.S.D.O.T. hazardous waste materials? ☐ Yes ☐ No

D. SUPPLEMENTAL INFORMATION

☐ None ☐ MSDS ☐ Analytical Data ☐ Process Knowledge Number of pages attached _____

E. SHIPPING INFORMATION

1. Packaging ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum ☐ Other _____ Shipping Frequency _____
2. Estimated Volume _____ ☐ Gallons ☐ Yards ☐ Drums Other _____

F. GENERATOR / CUSTOMER CERTIFICATION

I hereby certify that all information submitted and all attached documents contain true and accurate descriptions of this waste. No deliberate or willful omissions of composition or properties exist, and all known or suspected hazards have been disclosed. I further certify that the waste is not designated a Hazardous Waste as defined by the USUSEPA in 40 CFR 261, nor does it contain PCBs regulated under TSCA 40 CFR 761.

I, _____ am employed by _____ and am authorized to sign this request for

_____ _____

(Company Name) (Signature) (Date)

For Facility Use Only (DO NOT WRITE ON THIS SPACE)

Compliance Personnel: _____

Date: _____ ☐ Approved ☐ Rejected

Additional Comments: _____

GATE ATTENDANT CHECKLIST

	YES	NO	N/A
Generator Waste Profile Sheet (GWPS) filled out and signed?			
ODEQ approval letter on file?			
Manifest completed and in order:			
Information in manifest matches approval letter and/or GWPS:			
Manifest has been signed by generator?			
Manifest has been signed by transporter?			
Load volume has been verified?			
Cumulative volume does not exceed approval limit?			
Waste conforms to materials described in GWPS?			
Information regarding load has been logged into Operating Log Sheet?			
Manifest has been signed by facility representative and copy placed in file?			
Remaining copies of the manifest has been forwarded to appropriate facilities via mail?			

N/A – Non-applicable

Checklist completed by:

Name (Print): _____

Signature: _____

Title: _____

NHIW RANDOM INSPECTION REPORT

GENERAL INFORMATION (To be completed by transporter or facility personnel)

Date and Time: _____

Waste Authorization #: _____

Generator Name: _____

Transporter Name: _____

License Plate Number: _____

Driver's Name: _____

Driver's License Number: _____

Source of Waste: _____

Hauling Permit Number: _____

Waste Description: _____

INSPECTION OBSERVATIONS (To be completed by facility personnel)

		COMMENTS
Hazardous waste labels or placards?	YES / NO	
PCB transformers, labels or placards?	YES / NO	
Lead-acid batteries?	YES / NO	
Unrinsed pesticide containers?	YES / NO	
Bulk or containerized liquids?	YES / NO	
Free liquids present?	YES / NO	
Sludges, pastes or slurries?	YES / NO	
Powders, dust, smoke or vapors?	YES / NO	
Petroleum odors?	YES / NO	
Unusual odors?	YES / NO	
Other suspicious conditions?	YES / NO	

If YES, describe _____

Photos taken?	YES / NO (attached when available)
Will the waste pass the Paint Filter Liquid Test?	YES / NO
Extraneous or unauthorized materials found in shipment?	YES / NO
Waste accepted?	YES / NO
If NOT ACCEPTED, complete *Waste Rejection Form*	

Signature (facility inspector) Print Name Date

WASTE REJECTION FORM

Date and Time of Rejection: _____

Waste Authorization Number: _____

Waste Description: _____

Generator Name: _____

Generator Contact: _____

Generator Address & Phone: _____

Transporter Name: _____

Transporter Contact: _____

Transporter Address & Phone #: _____

Driver's Name and License#: _____

Vehicle License Number: _____

Hauling Permit Number: _____

Reason for Waste Rejection:

_____

_____

_____

_____

What happened to the rejected waste? (Who took it? Where?)

_____

_____

_____

_____

Notify the ODEQ by the next working day

Person contacted at the ODEQ: _____

Personnel that contacted the ODEQ: _____

Time: _____

Date: _____

ATTACH A COPY OF ANY ON-SITE TEST RESULTS (IF ANY) AND A COPY OF THE RANDOM WASTE INSPECTION FORM OR NON-HAZARDOUS WASTE MANIFEST.

_____

Signature of Site Inspector (Print Name) Date

Fax this copy to the ODEQ – Land Protection Division as part of notification procedure (405) 702-5101

NHIW TRACKING DOCUMENT

SECTION 1: GENERATOR INFORMATION	
Generator Name:	Phone Number:
Mailing Address:	
Address where waste was generated:	
WASTE INFORMATION	
Waste Code or No.:	
Waste Description:	
Quantity:	Units:
Type:	
GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping mane and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.	
Generator Authorized Agent Name. *Signature*	*Date*

Section 2: TRANSPORTER INFORMATION	
TRANSPORTER 1	**TRANSPORTER 2**
Name:	Name:
Address:	Address:
Driver's Name:	Driver's Name:
Vehicle License No.:	Vehicle License No.:
Phone No.:	Phone No.:
Acknowledgement of Receipt of Materials	Acknowledgement of Receipt of Materials
Driver's Signature Date	Driver's Signature Date

SECTION 3: RECEIVING FACILITY INFORMATION
Facility Name:
Physical Address:
Mailing Address:

Phone Number:
DiscrUSEPAncy Indication Space:
FACILITY CERTIFICATION: I hereby certify that the above named material has been accepted and the best of my knowledge the foregoing is true and accurate.
Facility Authorized Agent Name. *Signature* *Date*

NHIW MONTHLY REPORT

Month/Year: _____ Facility:_____ Permit No.:_____

Date	Generator Name	Waste Name	App No.	Amount

DEQ Form #520-821R

APPENDIX E

PERSONNEL TRAINING RECORD

City of Ada Municipal Solid Waste Transfer Station

I _____ certify that the personnel included in this list attended a training course of at least eight (8) hours and received training in the areas discussed in Section 5.0 of the Waste Exclusion Plan (WEP).

_____ _____

Instructor Signature Date

The undersigned state that they are familiar with the contents of the Facility's Waste Exclusion Plan, and they have received the training to comply with the guidelines as set forth in Section 5.0 of the WEP.

Print Name	Title	Signature	Date